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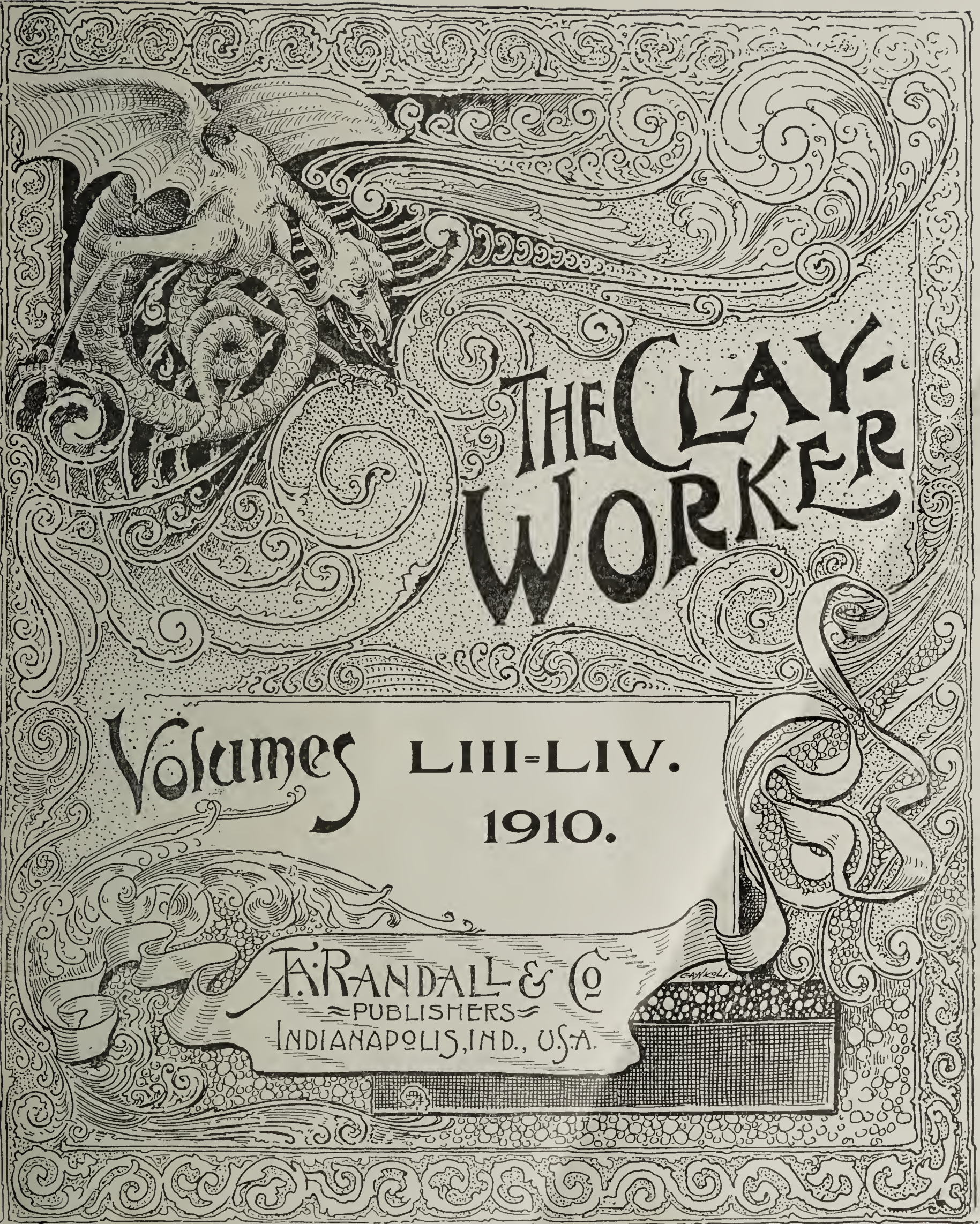
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REMOTE STORAGE



THE CLAY WORKER

Volumes LIII-LIV.
1910.

A. RANDALL & CO
PUBLISHERS
INDIANAPOLIS, IND., U.S.A.

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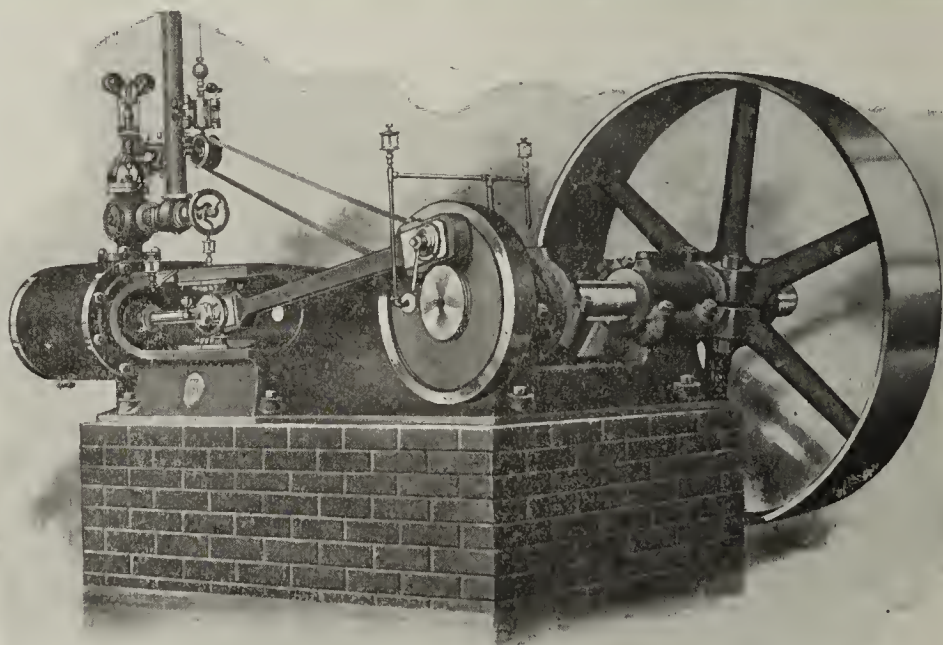
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Clayworkers, you need engines for your plants which will run with but little care and trouble.

Your Business

is the making of brick and tile.

Our Business
is the



making of engines and boilers which will fit into your plants. We can do it. See if we can't.

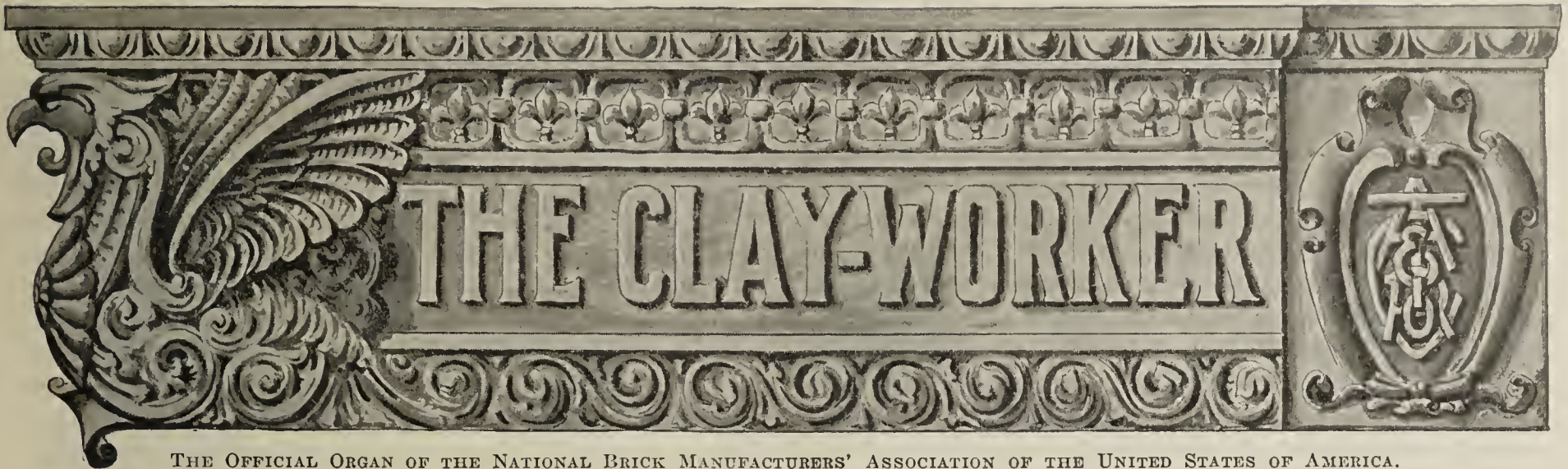
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Ceramics



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

VOL. LIII.

INDIANAPOLIS, IND., JANUARY, 1910.

No. 1.

Written for THE CLAY-WORKER.

PITTSBURG OLD AND NEW.

Features of the Convention City of Unusual Interest to Those
Who Will Attend the Twenty-fourth N. B. M. A.
Convention, February 7 to 12, 1910.

FOR THE SECOND time in its history, the members of the National Brick Manufacturers Association will gather in annual convention at Pittsburg, February 7 to 12. It is confidently predicted that the attendance will

safe to predict that the coming meeting will prove not only the largest, but the most enjoyable of all the annual gatherings to date.

Twelve years have worked wonders in this great industrial center. It is easily one of the greatest manufacturing districts in the world. In the production of iron and steel it scarcely has a rival and so the old sobriquet of the "Smoky City" has given way to that of "The Great Iron City." For our convenience it will herein and hereafter be termed "The Convention City." Our readers will be interested in some of the details which prove the city's greatness.



The Pennsylvania Union Railway Station, Pittsburg, a Notable Structure Built of Buff Brick and Terra Cotta. Driveway is Paved With Brick and Extends to Within Half a Block of the Ft. Pitt Hotel.

exceed that of any former meeting. The previous convention, held twelve years ago, or, to be exact, February 15th to 18th, 1898, is memorable for the enjoyment afforded those who participated. As Pittsburg has grown wonderfully since that time, it now affords even greater attractions. Hence it is

The Pittsburg district, according to her Chamber of Commerce statistician, claims a total of 3,600 manufacturing establishments, employing all told 336,000 men, and turning out an annual product valued at \$618,466,871. Her annual payroll aggregates something over \$150,000,000, and her indus-

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tries represent an investment of \$717,253,232. One of the city's chief industries is that of car building. There is turned out from her car shops over 65,000 cars per annum, something over 200 cars per day.

For an American city, Pittsburg has an interesting history. It was named for William Pitt, who played a leading part in the founding of the city. Prior to that time, however, it was an important military post, its founder being none other than George Washington, who, when but twenty-one years of age, was given his first important commission, that of bearing a communication to the French forces, who, with the Indians, were at that time (1753) menacing an encroachment upon the lands of the Ohio Company, an English land-holding company, at the head of the Ohio river. On the advice of Washington, who had carefully surveyed the ground,

the United States was started here in 1808, and the district has always been a controlling factor in the glass industry in this country. In 1907 her glass factories turned out one-fourth of the entire glass output of the United States. However, it is in the production of iron and steel that our convention city now outrivals all rivals. It is estimated that in 1907 there was produced in this district more than one-third of the entire iron and steel output of the United States, in which products we lead the world as a nation.

Although Pittsburg has devoted most of its time during the last century to manufacturing and business, it has also cultivated an artistic taste in architecture and has some fine commercial buildings, attractive residences, churches and educational institutions. An unusual structure is the Bridge of Sighs, a beautifully designed arch and stone-covered bridge,



View of the City of Pittsburg in 1817

Copyrighted by Charles O. Lappe.

the point of land lying between the Monongahela and Allegheny rivers, where these two streams join to form the Ohio, was chosen as the site for the post and the fort was built which was known then as Fort Duquesne, but later was rechristened Fort Pitt. A replica of this ancient structure was given to the members at the previous convention in the form of a souvenir badge or button, and the old building still stands one of the landmarks of the early settlers, and an object of interest to visitors.

In the early days, boat and vessel building was the city's chief enterprise. After that came coal mining and iron working, which, with the subsequent development of steel, has made the city one of the wealthiest industrial centers of the world today. The first flint glass manufactory established in

used as a passageway across an intervening street between the courthouse and the jail. The main tower of the courthouse rises 320 feet high, at the top of which one looks down upon a fine view of the city of Pittsburg. As in Venice, the convicted prisoner passes across this Bridge of Sighs from trial and conviction to his doom.

There are numerous attractive churches, bank buildings and commercial houses in busy Pittsburg, and to the eastward from the city proper, near Schenley park, are the finely-built Carnegie library, museum in Italian renaissance, Carnegie technical schools and Phipps conservatory.

In the residential sections, which are, for the most part on the hills east of Pittsburg proper, we find beautiful homes, built chiefly of brick and terra cotta. Across the Allegheny

river are seen many costly villas in beautiful situations on the surrounding highlands.

Pittsburg has a wealth of educational institutions, there being within its city limits one university, two denominational colleges, three theological seminaries, 121 public schools, four high schools, the Carnegie technical schools, and twenty-five private schools and business colleges. All are well located and substantially constructed, clay products being the principal building material.

In fact, we might call Pittsburg a "Brick City," as it possesses more brick buildings and residences for its population than any other city of its size in the country.

A great number of the buildings have been built of clay products made outside of Pittsburg, but for the most part

of clay products, which add to Pittsburg's permanent wealth and reputation.

THE AWAKENING.

In Which a Brick Man Had a Dream that Woke Him Up in More Ways Than One.



HE REGULAR WINTER dullness stuffed cram full of dismal reading matter about financial brainstorms and no-cent dollars instead of the regulation green and gold was the main squeeze in the cause of the modern brick man going to bed one night in a blue funk and



A Section of Schenley Park District, Showing Carnegie Library, Technical Schools and Phipps Conservatory.

the score of plants located in the "Smoky City" are selling their millions of brick annually to local contractors and builders.

The Harbison & Walker's largest fire and silica brick plants are located near Pittsburg, and are considered another one of Pittsburg's important industries. The National Fire-proofing Company is another prominent clay product manufacturing concern, with its main offices in Pittsburg. They operate a large plant there, which is the oldest of their many excellent and prosperous plants.

The Pittsburg Clay Pot Company, Booth & Flinn, Sankey Brothers, and a number of other concerns which are described in detail in this issue, all manufacture an immense quantity

having a dream that started off like a section from the lower regions, but finished with a noise like a long shot winner.

The Brick Man's Torment.

There appeared to his mental view in the dream a place of wondrous heat, which seemed to be a combination of brick kiln and cupola, with long tailed imps feeding in broken brick presses, rusty steam shovels, and other machinery of familiar type and expensive maintenance, which were new last year but had grown old and dilapidated in a year's time. While all this was going on at one side, other imps were playfully tossing out from the other side brick that had spewed and discolored so in burning that they would readily have furnished the basis for an interesting lecture

by Professor Orton on carbon and other foreign matter in clays, together with the effects of heat, etc., and the brick man was just wishing that Orton, Wheeler, Atchison, or some of the members of the Committee on Scientific Research would come along and hold a session, when there appeared before him a strange visitor which he seemed to have seen in different form at some other time but was unable to recognize.

Origo Appears.

The visitor on the scene looked like he might be a cross between the official jester of his Satanic majesty and a harper from Saint Peter, of the Golden City, although he had some of the characteristics of Bill Hustle and Major Ozone. He

died, and that the dazzle of his cheeks was not from the brass but a reflection of the light of Helios.

Origo Explains His Visit.

"Come," he said, "my name is Origo, and you need me, though you probably haven't realized this fact yet. You are too busy gazing on the gloomy aspects of Life. Come away from this and let us pass with swiftness of thought to new views and I will show you something that will give you new ideas."

Swiftly on the wings of thought they passed on from the vision of the brickmakers' torment to views of real life through the country. Among the things to which Origo called special attention were the stores, big and little, of hamlets,



The North Side (Allegheny), and the Point, Pittsburg, Pennsylvania, Showing Enormous

had brassy looking cheeks and ball-bearing, pneumatically operating jaws, and a cheerful smile that belongs to that classification "which won't come off" that we used to read about but seldom meet up with in real life. He smiled beamingly on the Brick Man and before the Brick Man could ask who he was, the strange visitor volunteered the information that he was the offspring of the second of the three Goddesses of Fate, the one that spins the cord of Human Life, before the third cuts it off, and Mercury, the messenger of the Gods, who had wings on his hat, sandals, and usually carried a wand with two serpents twined about it, the God of Eloquence, patron of orators and merchants, and he said that like the famous horses of Ixion he never grew old or

towns, and cities and after conveying to the mind of the brickmaker some ideas of the general magnitude of these he turned his attention to the incoming trains along the way, which were dumping off a great number of mammoth trunks and sample cases on the depot platforms, and also showed him numerous men getting off, bright men, men full of action and enterprise.

The Trade Builders.

"These," said Origo, "are men that are called drummers and traveling salesmen, but they are in reality a species of builders. They are trade builders and they are as important in the affairs of this world as machinery builders, home builders or any of the other classes of builders. The great

number of trunks you see contain their implements. It is these men, together with their implements and their enterprise and activity that make possible more than half of the mercantile business of the country. There would be some stores without them, of course, just as there would be some homes without brick, but there wouldn't be so many, so fine nor so good."

By and by, continuing and dilating on this subject, they passed on through the country and came to New York, which is regarded as the head of high finance and all other financial affairs, and here they took a peep at the resources and business of the big life insurance companies.

"Now, what," inquired the Brick Man, "has this got to do with trade? Are these people trade builders?"

greatest example of what can be accomplished by salesmanship in the hands of live, well organized, thoroughly trained and continually inspired solicitors, and these solicitors are not only making the enormous sums representing the assets of these insurance companies, but are at the same time making handsome salaries for themselves while doing it. Now, keep this in mind for a while and come with me."

In a twinkling they had taken their flight and arrived at a brickmaking establishment where there were not only steam shovels, but the most up-to-date and expensive machinery of all kinds in the plant, and a well equipped laboratory with everything necessary for the analysis of clays, experimental kilns for testing their burning qualities and the results of it after burning—in fact, everything that could be



Number of Barges on Monongahela River, Loaded With Coal Ready for Shipment.

"No, not directly," replied Origo, "but I have brought you here to show you an example of what can be accomplished by salesmanship as exemplified by the personal solicitation of man to man. How do you suppose all this insurance business was built up? By advertising and by doing a little personal work on the part of presidents and other main officers of the company? Not by a jug full! They do advertising, of course, and lots of it, and do some personal work of their own, but the main part of the work of the wide extension of life insurance and the writing of such quantities of policies as pile up enormous resources for the big insurance companies is accomplished by solicitors, drummers, or trade builders. The insurance business probably stands as the

thought of or that money could buy to obtain the best results in the most scientific manner in brickmaking.

The Brick Man smiled, because he recognized the place and regarded it as being as near perfect as it was possible to make it, so he turned to Origo and said, "What fault is there to find with this?"

The Brick Man's Need.

"None whatever," Origo replied, "I admire this and not only admire it, but want to congratulate you and all your brickmaking friends on the wonderful progress you have made in the past twenty-five years, but even so, I want to find some fault with you, not with the plant, and then see if

I can't inspire you with a new idea. The fault with you is that you have concentrated your main energies on the one object of producing the best brick in the most scientific manner, at the least possible expense and have given but little thought to marketing your brick in the most scientific and practical manner. Now, don't turn loose yet," he said, as the brickmaker made as if to say something. "I know what you are going to say, I know that you advertise, and that you go out and sell brick, and hire a few men to sell brick and that you talk continually about the quality of brick and circulate some good literature about the quality of brick, etc., but now just suppose for an instant that these big insurance concerns I have shown you did the same thing, no more, and you can see for yourself that they would not have half the resources. Also, why do you suppose that the manufacturers of clothes, boots and shoes, groceries, and everything else, hire great armies of men and that they visit personally in every hamlet, town and city in the country? Why? Simply because they are trade builders and because they are essential to keeping business up and growing. That is what you need for the brick business. More trade builders! More traveling men, not just a few more, but thousands."

"Well, you see," said the Brick Man, impressed, but not convinced, "all these things are as you say, probably, but you must remember that the brick business is different from selling boots, shoes, and groceries, and other merchandise. Brick is not used by every family all the time, and its consumption depends entirely on building operations and is confined to those who contemplate such improvements."

The Doings of a Live Wire.

Origo looked at the Brick Man rather sorrowfully a while, then muttered something about the difficulties of trying to convince men who are more ready to prove themselves in the right than to make progress, then said, "Yes, the brick business is different from other business, but there is no business, except probably that of undertaking, but what can be enlarged by proper effort. The insurance business is different from the boot and shoe business and machinery business is different from either, yet all find that the drummer or trade builder is essential to rapid and sustained enlargement. Let me cite you a case in the lumber world. There is a certain kind of lumber made, which though lumber in many other lines had grown scarce, and high, the manufacturers of this kind of lumber found an abundance of it on hand, and only a limited market, and it was thought adapted especially to certain lines of work only. They made various efforts to enlarge the field of its business, until finally they conceived the idea of stirring up things with a few live wires in the way of bright, enthusiastic salesmen. One of these salesmen was given a certain territory where only a limited quantity was used for special purposes and he had what looked to the other boys in the field a hopeless task and a short time job. He set to work enthusiastically, began to figure out the various uses to which it might be put, persuaded people to try sample lots, went here and there, putting his product before the people enthusiastically, and before the year rolled around he had increased the business in his territory more than five times its original size, and had started the ball rolling in good shape, and had done a splendid business. That was not boots, shoes or groceries, but building material.

Does This Shoe Fit?

"Meantime, what are you fellows doing. You are studying about making your product better, and making efforts to have your plant better and more up-to-date. You see lumber growing scarce and a steadily enlarging need for better building material for various reasons. You see the cement people grow by advertising and by the use of traveling salesmen and drummers pushing concrete, which is admittedly inferior, but getting there just the same. Why? Because you fellows

are asleep and need to be wakened up on the subject of salesmanship, and the number of advantages to be had by employing ten times as many traveling salesmen as you have and sending them out to cultivate the territory thoroughly and build up trade for you. You need some man to ask, 'Why sit idle?' with the trade dull, business hard to get, machinery rusting and your men laid off, waiting until business gets better and building operations liven up of their own accord. Why don't you wake up, and liven up building operations yourself? Take some of these idle men, send them on the road to sell brick and you will soon have business enough to keep the others busy making brick. There are a whole lot of other things I could say to you along this line and a lot of suggestions and details that might be given, but what's the use to say all that? What you need, first, old



Modern Pittsburg—Daylight View of Liberty Avenue.

man, is to wake up! Wake! Wake! Wake!" And then as the vision of Origo disappeared there was a thundering and flashing like unto that heard and seen in the reproduction of "The Dawn of Civilization," and the Brick Man's dream came to an end with himself sitting up in bed, wide awake, not only awake physically, but he was so impressed with it that he became awake mentally, to a new idea of pushing his products, and he made up his mind that he would not only send a lot of the boys out on the road to push his clay products but to tell the others about it at the annual meeting, and to see if they couldn't start a new era in trade building for the brick industry, which would in the course of time measure up well with the progress made in brickmaking.

Kiln waste may be quite an item, but don't forget that fuel economy is one of the great problems in brickmaking.

Written for THE CLAY-WORKER.

THE TWIN CITIES AND THE NORTHWEST.



THE DULLEST TIME of the year, so far as active conditions are concerned, is now at hand. All the projects for new work at this time are in the early stage, many of them merely tentative and undecided. But the general conditions are very satisfactory and so far as any anticipation can be forecasted the forthcoming season should be as good a season as the last one, if not better. The one thing which threatens to make trouble is the attitude of labor. There is a tendency to demand advance in wages, which of itself may not be objected to, if kept within due bounds. But this is seldom the



Modern Pittsburg—Night View of Liberty Avenue.

case. The brick manufacturers of the northwest realize that they must get their business upon a higher priced plane if they are to make any money. Everything is advancing and they can not profit on former prices. Fuel is costing more and more, takes longer to secure, is frequently less satisfactory, and in every way is a more expensive article to handle. Labor of all kinds costs more and it is a somewhat general experience that it accomplishes less. All these things have to be taken into consideration in fixing prices. Yet the feeling is that it has been hard enough heretofore to get the prices asked, and it may be still harder to get an increase. One suggestion is to improve the quality of the goods produced and increase the price in greater proportion. This will afford an opportunity to get at the competition of concrete products where it is most vulnerable.

When concrete goods are improved in quality it is always at a very material increase in cost, so that a moderate increase in the cost of production in clay goods gives them a decided advantage over the other goods. Another thing that is essential is to push the fact of the value of clay goods with greater publicity. Some of the most astounding statements are made as to the relative values of clay and other goods, and are allowed to pass unchallenged, to the great disadvantage of the clay goods.

The Commissioner of Labor of Minnesota, W. E. McEwen, has decided to require contractors to stretch wire netting across open floor spaces during the construction of high buildings, to serve to catch workmen who may be so unfortunate as to miss their footing and fall. Heretofore he has proposed to require temporary plank flooring, which has been objected to on the ground of excessive expense by the contractors. Mr. McEwen holds that he has the right to make this requirement under the state laws for general safety appliances.

The Minnesota State Association of Builders Exchanges held its annual meeting in Minneapolis during December. The association is composed of representatives from the various exchanges of the state, and is a representative body of the more prominent contractors and builders. The organization took advanced ground in favor of a new law being passed in this state whereby employers of labor which involves the use of machinery of any kind, including agriculture, may have a schedule of accident damages for the various classes of accidents, running from minor and temporary injuries to death. The association also urged the wider development of trade schools and the education of the young men in the grade schools, rather than the high schools, in bricklaying, carpenter work and other lines.

Bricklayers of Minneapolis and St. Paul have demanded an increase of 5 cents per hour from April 1, the beginning of the new season. They are now receiving 60 cents per hour.

A complete new building code is being formulated in St. Paul, and much discussion is being indulged in over some of the clauses proposed.

The building totals for St. Paul and Minneapolis for the year of 1909 have exceeded all totals. Minneapolis shows a gain of a round \$3,000,000, having reached the total of \$13,070,000 for the past twelve months, the highest total ever reached, and amounting to an average per month of over a million dollars. St. Paul showed even a greater gain, having touched \$12,000,000, and with a gain of close to \$4,000,000, an increase of 50 per cent. for the year. And the prospects for the coming year are fairly good for a continuation of the same heavy volume of building.

The Eisentraut Company, of Kansas City, Mo., which has been doing an architectural and engineering business there, has removed to Rapid City, S. Dak., where the title is changed to the Black Hills Company. The company has taken on the manufacture of building brick, operating stone quarries and general construction work, as well as continuing architecture and building.

Projected New Buildings.

The Flour City Ornamental Iron Works, of Minneapolis, has started work for a number of buildings at its plant in South Minneapolis. There will be a fitting shop, a brick addition to the pattern and storage shop, a one-story addition to the foundry, and the office will be refaced with brick. The work will cost around \$35,000.

The H. N. Leighton Company, of Minneapolis, has been awarded the general contract for the seven-story brick addition to the wholesale dry goods warehouse of Wyman, Partidge & Co., at Fourth street and First avenue, North. It will be 55x162 feet in size and will cost, complete, \$150,000.

The J. & W. A. Elliott Co., of Minneapolis, received the

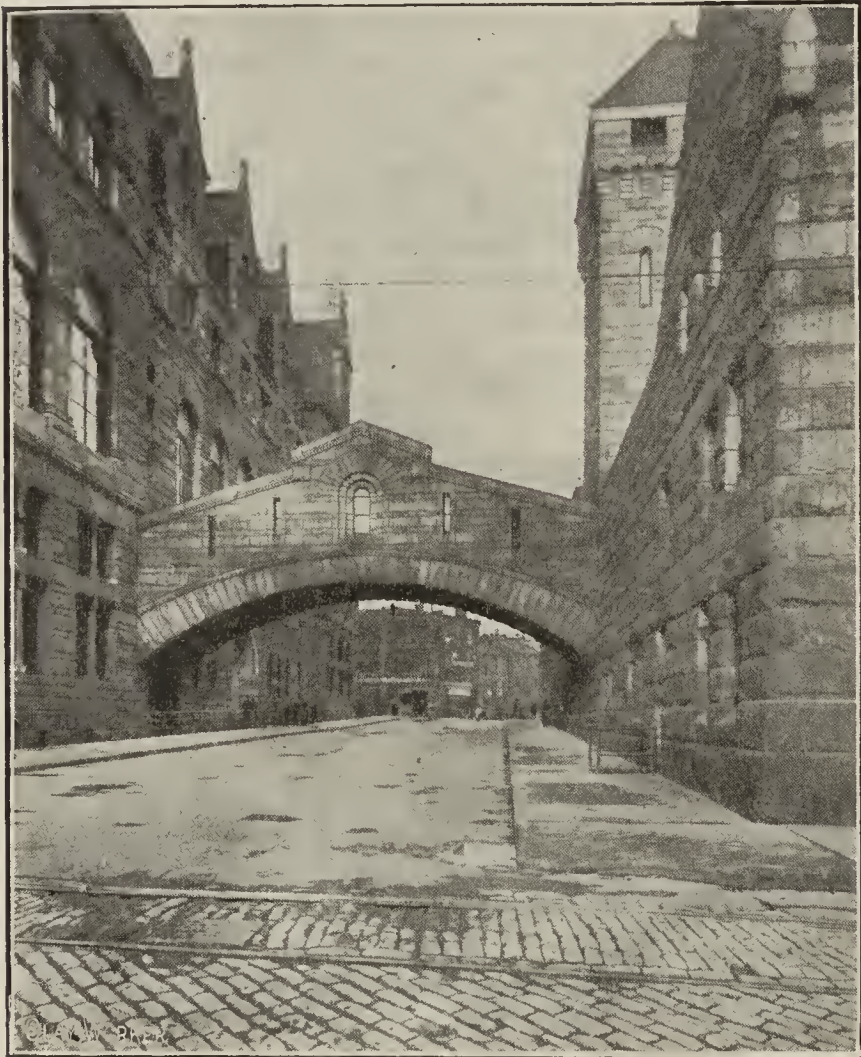
general contract for the erection of the new building for the Nicollet Associates, at Ninth street and Nicollet avenue. It will be of pressed brick exterior walls, two and four stories high, costing about \$150,000.

The Board of Education of Minneapolis seeks the permission of the City Council to issue \$1,000,000 in bonds for the erection of new school buildings.

L. M. Churchill will erect an elaborate flat building in Minneapolis, at Park avenue and Seventeenth street, on plans by Lindstrom & Almars, architects. The exterior walls will be of white enameled brick. Cost, \$25,000.

The University of Minnesota will have erected this season an anatomical building and a medical building, each to cost \$100,000. There will also be an engineering building, which will cost \$200,000. All will be at the university in southeast Minneapolis.

Kees & Colburn, architects, Minneapolis, have prepared plans for an elaborate sanitarium building to be erected at Jordan, Minn., by the Jordan Sulphur Springs Sanitarium.



The Bridge of Sighs, Pittsburg (see page 26).

The main building will be of brick construction, three stories, 75x250 feet, with an ell 70x100 feet. There will be a detached brick power house. Cost, complete, \$150,000.

Griggs, Cooper & Co., wholesale grocers, St. Paul, are having plans prepared for an immense wholesale house in the Midway district. Factory and warehouse buildings to cover thirteen acres are proposed. There will be space under roof to accommodate thirty cars on track.

The Minneapolis Transfer and Storage Company is having plans prepared for a five-story storage warehouse to be erected at Hennepin avenue and Twenty-ninth street, to cost about \$100,000. It will be fireproof construction.

E. G. Davis has the general contract for the erection of the J. E. Meyers building to be erected at 916-932 Nicollet avenue, corner of Tenth street, Minneapolis. The building will be three stories, brick construction, and will cost \$75,000.

Charles H. Wheeler has had plans prepared by Clifford T. McElroy, architect, of Minneapolis, for an eight-story

apartment building to be erected on Willow street, between Harmon place and Mary place, in Minneapolis. It will be of fireproof construction throughout, of unique construction, and the estimated cost is \$100,000.

George J. Reis, architect, St. Paul, is completing detail



The Clay's Journey from Bank to Plant, Sankey Brothers' Yard.

plans for the proposed church to be erected by St. Agnes Catholic congregation in St. Paul, at Kent and Thomas streets. The building will be of Bedford stone exterior walls and will cost about \$200,000.

T. WIN.

IN AND ABOUT PITTSBURG'S CLAY PLANTS.

Busy Brickyards Within the City Limits Which Contribute Largely to the Permanent Wealth of the "World's Workshop."

TRIPS THROUGH the many brick plants, of which there are more than twenty in Pittsburg, would perhaps be interesting to the average clayworker. The following condensed descriptions of the several plants are given that the reader may have an idea what this center of centers is doing in the clay line:

Sankey Brothers' Plants.

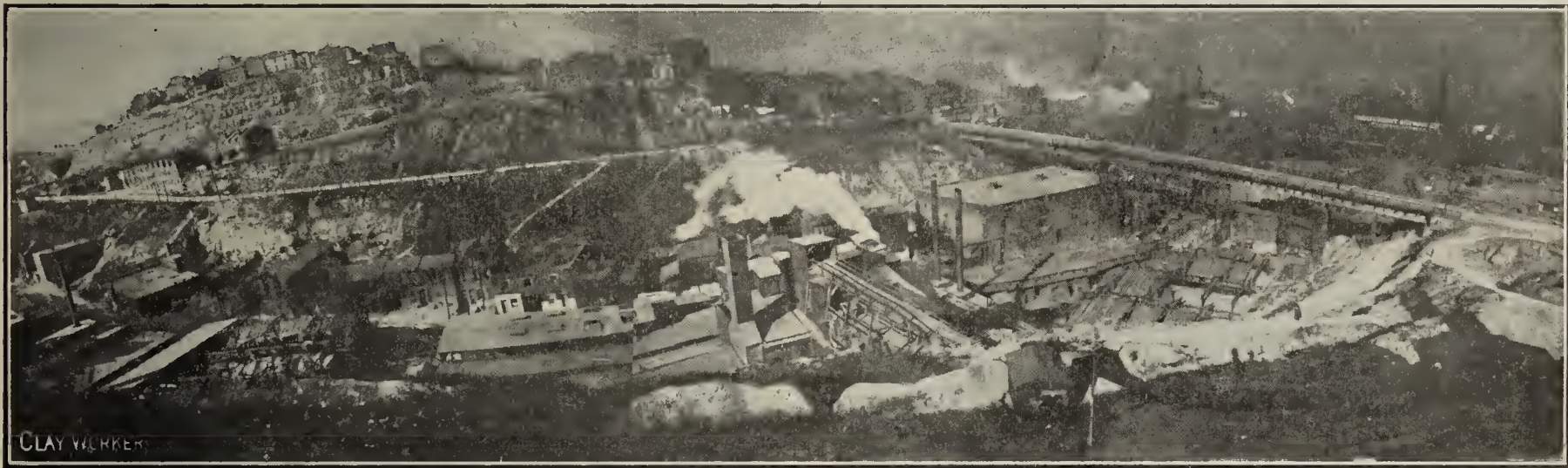
The Sankey Brothers is the name of a company owning two of Pittsburg's finest brick plants. For over half a century the Sankeys have been engaged in the brick business, furnishing brick for many of the finest residences in the "Brick City." In every part of this great industrial center one can find homes built with their products. This, in a few words, tells of the past success of the Sankey Brothers. Today they are doing even a larger business than in the years past.

The present officers of the plant are W. E. Sankey, presi-

dent, which was located on the side of an immense hill on Twenty-first street, was removed a square distant east and erected at the foot of another large hill facing the old site. For the last ten years the plant has been operating to full capacity, running almost constantly, with only a few shutdowns for necessary repairs.

This company owns the largest clay and shale land in Pittsburg, and though ten years of working has made some impression on the face of the immense hill, there is still enough raw material to last for several generations.

The hill has a 100-foot face, there being 12 feet of subsoil, which is used in the manufacture of the common building brick. The rest of the bank contains about the same formations as found in the other clay and shale hills in and about Pittsburg, and possesses about the same average depths of the several clays and shales. The Sankeys are working the hill at several different points, using the various materials



Panoramic View of Sankey Bros.' Brick Plants, Pittsburg, Pa. A Typical Scene in the Outskirts of the City.

dent; Frank M. Sankey, secretary-treasurer; Ed W. Sankey, vice-president; Walter W. Sankey, manager, and Thos. H. Sankey, John F. Sankey and Thos. Sankey estate, stockholders.

The senior Sankeys, William and Thomas, started in the brick business fifty-two years ago, when Pittsburg was a mere village, and have been instrumental in making Pittsburg the brick city it is today, for the brick have been good and have stood the test of time, many of the buildings being erected half a century ago of their product being in almost as good condition as during their first few years. This is due in no small part to the fixed determination of the Sankey Brothers through their entire business lives to place quality of the ware before quantity.

The present generations are adhering to this principle, and are making as high-grade building brick as can be found in their market.

Formerly they had two yards, one known as the East Side yard, which had a daily capacity of 40,000, and the other the South Side yard, making 10,000 press and 15,000 sand-molded brick.

The East Side yard was abandoned after their clay lands in that section were exhausted, and the South Side yard was increased in capacity and operated until the clay and shale land on that site was worked out in 1899. At this time the

for the manufacture of their different grades of brick.

All of the material is blasted and shoveled by hand into bottom dump cars and taken to the storage bins. The plant is located in a valley at the foot of the hill, most of the clay and shale bearing stratas being above the tops of the highest buildings on the yard, hence chutes are used where necessary, the cars being at the ends of long, high trestles. The storage capacity of the main storage bin is sufficient for making 65,000 brick. The machinery equipment of the No. 1 plant is two Stevenson 9-foot dry pans, two Dunlap screens, a Freese pugmill and brick machine, a Martin brick machine, and Simpson dry press brick machine.

The 40,000 to 50,000 brick made daily are dried in a ten-tunnel Wolff steam dryer. The steam is obtained from a boiler fired with gas. The ware is burned in seven up-draft kilns, each eighteen arches, having a capacity of 3,000,000 brick. Gas is the fuel used in burning as on most of the other yards in Pittsburg. There is a large stock yard for the face brick and special shapes of brick.

The company owns a stable which houses twenty-five head of horses. The repairs are made in the company's own shop.

The power of the plant consists of a 150 h. p. high-speed engine. The No. 2 plant is directly south and adjoining the No. 1 plant. This was formerly known as the Koeling yard.

The daily capacity is approximately 25,000 common building brick.

The machinery equipment here is the same as at the No. 1 plant, with the exception of the dry press brick machine. The same type and size dryer is employed and the ware burned in four up-draft, open-top kilns, each of 300,000 capacity.

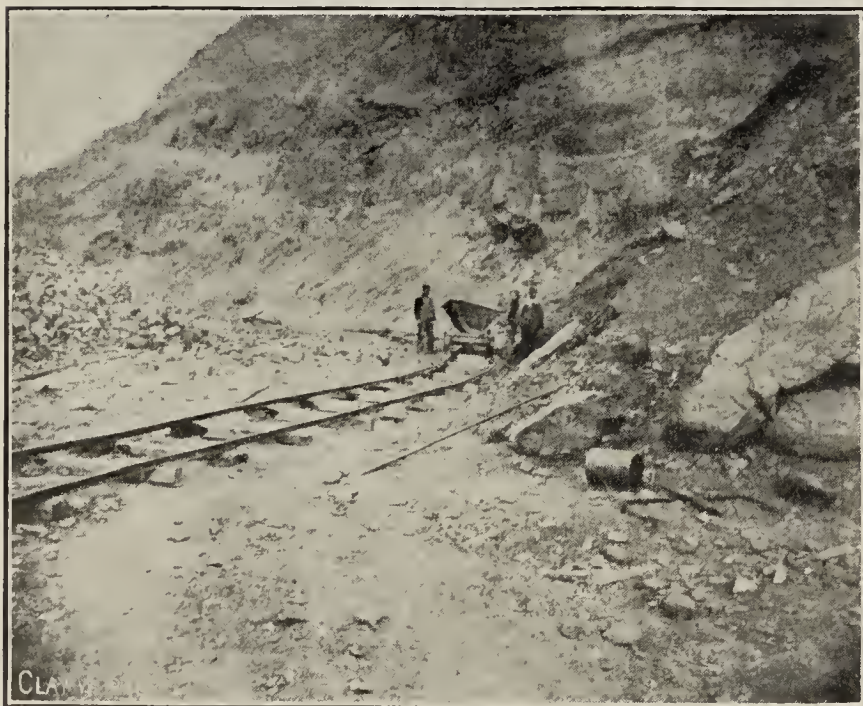
Mr. Walter W. Sankey is the general manager of both plants and is to be found about the plants most of the day, being untiring in his efforts, and certainly an excellent man for the position.

The main office of the company is a few blocks from the plants, on Twenty-first and Carson streets. The Sankey

being 12 feet of surface clay and 70 feet of shale. The bank is worked in the same way as at the other plants, blasted and shoveled by hand onto C. & A. Potts & Co. 1½-yard rocker wooden cars. The cars are pushed to the plant, which is 150 feet distance. The raw material is ground in a Phillips-McLaren 9-foot dry pan and elevated to gravity screens, thence to Potts stock combined brick machine. A Potts sand-molder is used, from which the sanded brick are taken on pallets and placed on dryer cars and taken into a Baron five-tunnel steam dryer. Only two kilns have been erected so far, each of 425,000 capacity. The company is now grading off the ground preparatory to the building of three more kilns. As the business grows and necessity demands,



The Immense Shale and Clay Bank of the Central Brick Company.



A Portion of the Central Brick Company's Clay Pit.

Brothers are also the Pittsburg agents for the Henry Martin machinery.

A few squares to the southeast of the Sankey yards is the Lanz Brick Works, making between 26,000 and 30,000 common building brick, having about the same clay bank as the Central Brick Company, and making their brick in about the same manner. Across the Monongahela river, to the northeast, is the Squirrel Hill Brick Company, with a similar equipment. Both these plants are being run to full capacity and are busily engaged filling their orders.

The most recently built plant in Pittsburg is the Tom Marshall Brick Plant. This was erected during the past year. The shale and clay bank has an 82-foot face, there



A Glimpse of the Kiln Yard, Central Brick Company.

more kilns will be erected. The burning is done with coal entirely. The power of the plant is furnished by means of a 150 h. p. engine and boiler.

The Central Brick Company's Plant.

This yard is located in the center of Greater Pittsburg and, as a result, is very easily reached. The Center street car line passes within a short walking distance of the plant, which is built on the side of an immense hill of shale on Soho and Wadsworth streets. Mr. Carl Cappel, a very prominent figure at the N. B. M. A. Conventions, is president of the company, while Mr. E. W. Jones is secretary. Mr. Cappel at the present time is busily engaged in a political cam-

paign. He is running for congress in the biggest congressional district in Pennsylvania.

Knowing Mr. Cappel as most of the members do, they will perhaps be very much interested in seeing his plant. At the plant we met Mr. A. A. Wenzel, the superintendent, who enjoys entertaining visiting clayworkers. Under his guidance we visited the large shale bank, which has close to 100 feet in face. There is a 4-foot subsoil, beneath which is a 4-foot vein of coal resting on a 13-foot strata of fire clay. Under the fire clay is a 20-foot formation of red clay containing a high percentage of iron. This formation is separated from a 20-foot vein of hard shale by two stratas of

pany dryer cars and taken into an eight-tunnel natural gas heated dryer. The brick are dried in twenty-four hours. Five up-draft kilns of 400,000 capacity each and fired with natural gas are conveniently located near the dryer.

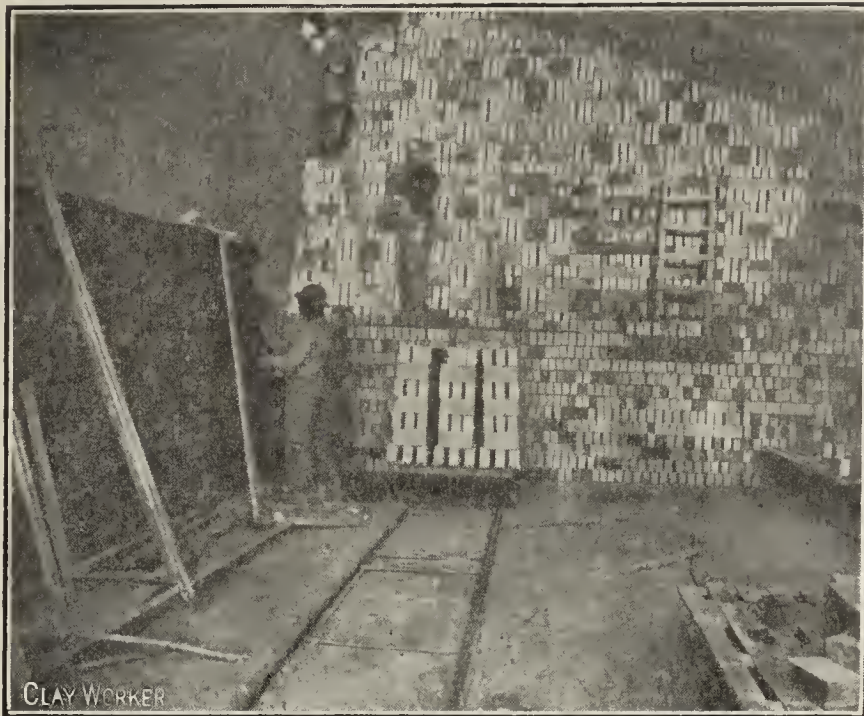
The power of the plant is furnished by a 150 h. p. high-speed Erie engine and a 150 h. p. boiler. Gas is the only fuel used.

The company's trade is confined to Pittsburg, all the brick being hauled by wagons. The company owns a large stable, housing sixteen head of horses.

From this plant you can easily reach the Booth & Flinn plants after a short walk over a high hill to the west.



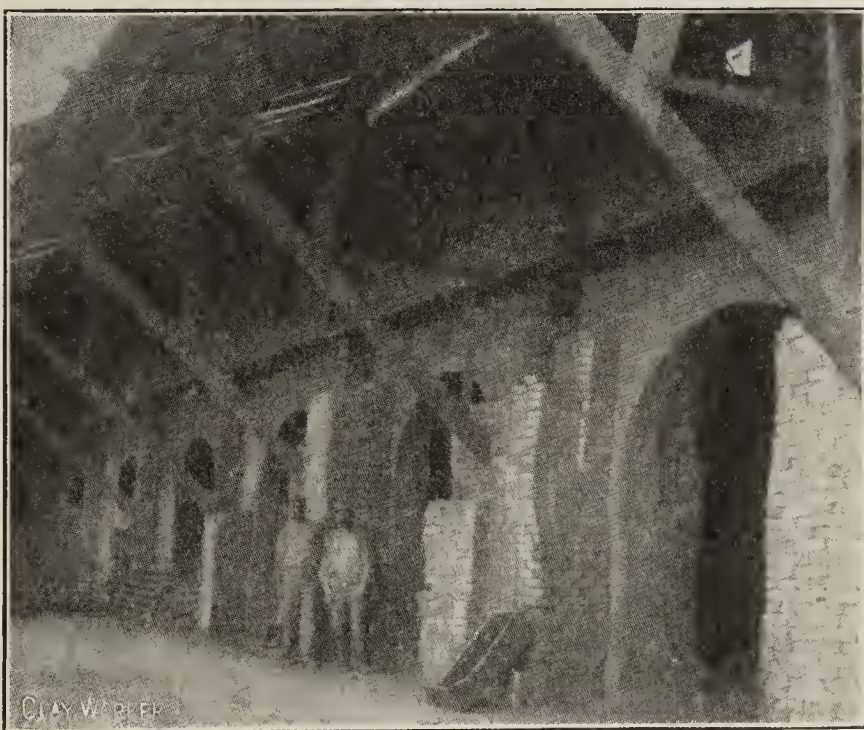
Steam Shovel at Work at Booth & Flinn's Clay Bank.



Setting Brick in an Up-Draft Kiln.



Emptying a Kiln at Booth & Flinn's Yard.



The Continuous Kilns. Booth & Flinn's Plant.

limestone. All this wealth of easily worked clay and shale rests upon a fine foundation of building stone.

The clay and shale is dynamited and taken to the plant in side-dump steel cars by gravity. Each car holds 1½ yards of clay.

The raw material is ground in a 9-foot Stevenson pan, which can grind in one day sufficient material for making 45,000 brick. The capacity of this plant, however, is 35,000 common building brick. From the pans the material is elevated to a Dunlap screen and then dropped into a Stevenson pugmill. The Freese machine and automatic cutting table is used. The green brick are stacked on Cleveland Car Com-

The Booth & Flinn Plants.

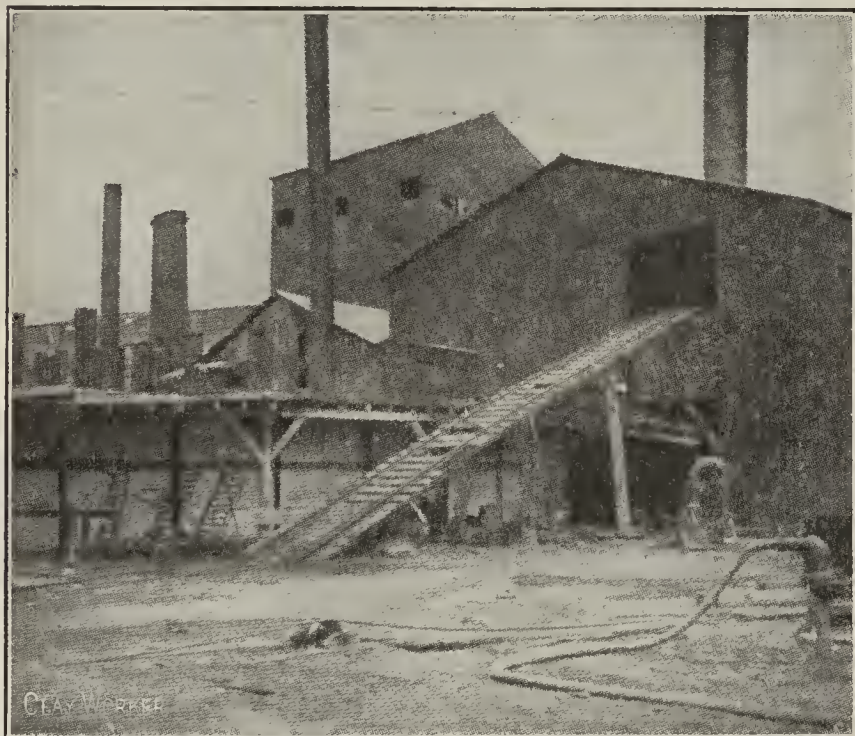
These two yards cover a large area of land and possess a more varied line of equipment than found in any of the other clay plants in Pittsburg. They are virtually two plants in one, and are called the upper and lower yards. The main office, a handsome two-story brick building, is located on Forbes street. Here we found Mr. George H. Flinn, son of Ex-Senator Flinn, an ex-president of the N. B. M. A., who, although now directing many other large business enterprises, still has his interest in the brick business, leaving the management of the work to his son, who has followed in his father's footsteps as a dutiful son should. It is not

necessary for us to eulogize the founder of such plants as these two and the old Pittsburgh Terra Cotta Lumber Company's plant, now owned and operated by the National Fireproofing Company; suffice it to say that Mr. Flinn, Sr., has made his mark in the world, being considered one of the Convention City's most prominent political and business men.

The company owns a large part of Ruch's hill, on which the two plants are located. This today possesses enough clay to last for several generations to come, although a steam shovel has been eating its way into the 80-foot face of shale and clay for nearly twenty years. They first fall the clay with dynamite and then an extra large Marion steam shovel is brought into play, the dipper of the shovel scooping up nearly a yard of clay at a bite and dropping it into side-dump cars of novel construction, the invention of George H. Albertson, formerly manager of the plants. The bottom is wedge shaped, the sides of the car being hinged at the top. The loaded cars are drawn to the plant by means of a strong cable; when they reach the proper place at the plant a trip beside the track releases the bolt which holds the sides in place, they swing out and the raw material tumbles down of its own weight onto belt conveyers which carry it to the dry pans. Thus the work of handling the clay is reduced

lower yard, but found that the clay was not adapted to that process.

Mr. George H. Albertson was manager of the plant from the founding until 1890, at which time Mr. Frank Kahn took charge and has been the acting superintendent ever since. Before 1890 coal was used as the chief fuel, the company owning its own mine near the lower plant. The mine's output was not sufficient for the entire amount of fuel needed, however, so that the company bought the larger portion of the fuel supply in the form of slack, which cost them about 90 cents a ton delivered. This was hauled in wagons from the river to the foot of the hill and dumped into cars, which in turn were hauled by cable up a 500-foot incline to the



A Section of Booth & Flinn's Upper Yard.

to a minimum, the man or boy who controls the hoisting drum and hauls up the loaded cars and sends back the empties being the only hand required in this part of the work. From the dry pans the clay is elevated to piano wire screens and thence to pugmills, where warm water is added, the exhaust from the engine being utilized for that purpose; the tempered mass is then fed into a Freese stiff-mud machine. The green brick are set on dryer cars and dried in a direct heat thirty-tunnel dryer of the company's own make. Gas is employed in the drying and burning. The brick are burned in seven unusually large up-draft clamps, each holding about 500,000 brick each. A detachable wooden roof is used on the kilns, none of which is less than 10 feet above the top of the kilns at the eaves. The brick are set fifty-two high, thus giving them the best results in the burning with gas.

The lower yard has about the same equipment as the upper yard; here, however, they burn the brick in a top-fired fourteen-chamber continuous kiln, each chamber holding about 16,000 brick.

The annual output of these two plants totals in round numbers 25,000,000. Most of the delivery is by wagon, though four or five million brick are delivered by car to distant parts of the city. At one time they made dry press brick on the



General View Beckett's Brick Plant.



Cutting Hollow Tile by Hand, National Fireproofing Company's Plant.

works. The old incline still remains near the plant, though merely a semblance of its former self.

Mr. Albertson, during his years of management of the two plants, introduced many economical methods and equipments, and though interested in other lines still visits the plant occasionally to be once more on his old stamping grounds.

When Mr. Frank Kahn became the acting superintendent the burning was changed from coal to gas, which has proven a great money-saver and better adapted for the burning of their ware. They get a 12-cent gas, with which they get a much more uniform burn than with coal.

The two plants are run in a thoroughly business-like

manner, every detail being looked after and checked up closely. Their system of accounts is very elaborate, every department being included in a daily report that shows what has been done, who did it and what it cost. In this way they avoid all guessing and know to a fraction just what their daily expenses amount to.

In the northern part of Pittsburg we find the interesting plant of the

Iron City Brick and Stone Company.

This was built fifteen years ago on its present site on Stanton street, and has not the advantage of having a rich clay bank, but possesses a large quality of building stone, so that the business of the company is divided between stone quarrying and brickmaking.

The clay and shale is worked off first, after which the stone is taken out in huge blocks and cut to suit the demand.

The president of the company is Mr. Francis J. Torrance, while the secretary-treasurer is none other than Mr. Grant Dibert, who was instrumental in giving the N. B. M. A. members such a royal good time twelve years ago, when the twelfth annual convention was held in the Smoky City. At that time he was at the head of the local entertainment committee.

In working the clay and shale bank, no stripping is necessary. The clay and shale is dynamited and shoveled into 1½-yard wooden cars and run down to the plant by gravity. A long cable draws the empty cars back to the bank.

The cars are dumped in a storage shed holding a two days' run of raw material, where it is shoveled into two Phillips-McLaren dry pans. The ground material is taken in cup elevators to two Dunlap screens and from thence drops down to a Fate combination pugmill and brick machine. An automatic Freese cutting table is used in cutting the brick. The green brick are dried in a Wolff ten-tunnel dryer, gas being used as the fuel. The brick are dried in five up-draft, open-top kilns of twenty-arch each.

The power for the plant and quarry is furnished by means of two boilers, one 250 and the other 150 h. p., and a 150 h. p. engine. The company owns a shop, where needed repairs are made, and a large stable for housing their horses. They cater only to Pittsburg trade, the entire delivery being made by wagons.

A short distance from the Iron City Brick and Stone Company's plant is that of the Blair Brothers, three of the oldest brickmakers in Pittsburg. They entered the brick business in 1868 and are still actively engaged. The present plant is the fifth yard they have operated in the "Brick City," the other yards being removed to new locations with the exhaustion of their clay lands. This is a soft-mud brickyard, using a Stevenson pan, Martin machine, Potts sander and a Baron dryer. Four kilns are used in the burning, all up-draft, 250,000 each, and fired with gas. Their business is confined to Pittsburg alone.

On Pacific and Marshall streets, near Pennsylvania avenue, is the

Beckett's Brick Works.

Mr. John W. Beckett, father of Mr. E. W. Beckett, the present manager, and, by the way, still active in the business, is one of the oldest brickmakers in western Pennsylvania, entering the business in Pittsburg in 1865.

The present plant of the Becketts is only five years old, they, like the Blairs and the Sankeys, having to change location for the reason previously mentioned.

The clay and shale land is about the same as found at the other yard, though not running to the same depth, there being 4 feet of surface clay over a 26-foot vein of shale.

The clay and shale is dynamited and wheeled to the plant in wheelbarrows. The Phillips-McLaren pan, Dunlap screen, Stevenson pugmill and Martin machine, two (a 100 and an 80 h. p.) boilers and a 150 h. p. engine is the machinery

equipment. The brick are dried in a Chicago six-track Iron Clad dryer, employing live steam. The drying is accomplished in forty-eight hours. Five clamp kilns are used, each holding 240,000 each, fired entirely with gas.

This plant, like the others, has a suitable shop and stable, and handles only local trade.

In the northeast and eastern part of Pittsburg, almost touching the city boundary lines, are located the two plants of J. H. Ward & Sons, which, with the plants of W. J. Frances & Co., Hooper Brothers, Evans Jones and Enterprise Brick Company, forms a group known as the East Side brickyards. These are, for the most part, very similar in equipment and operation, making common building brick by soft-mud process, with capacities ranging from 20,000 to 30,000, and handling only local trade.

In Allegheny we find the plants of the Miller Brothers and Lambert & Huff, while to the north of Pittsburg are the plants of the Smith Brothers and the Allegheny Brick Company, these four varying slightly from the other plants mentioned, all making a good grade of building brick, and handling only Pittsburg trade.

The plant nearest the Fort Pitt hotel is that of the Smith Brothers, who own two yards, one outside the city limits and the other on Magee and Vickory streets. This latter plant was formerly known as the Boyd Hill Brick Company's plant, and was purchased by the Smith Brothers in April, 1909. The Smith Brothers purchased their other plant, located at Glensboro, in 1901, though both plants have been in operation for twenty-eight or more years. Space need not be taken here for descriptions of these plants, for they have about the same capacity as the other yards, though the one in Pittsburg is different from the usual run of plants in so far that they have no clay bank, but use raw material obtained from excavations and workings, the company being paid per car for the clay dumped on their land, and have the privilege to decide just what kind of material shall be dumped.

The National Fireproofing Company's Plant.

High up on one of the lesser hills in the eastern portion of the city is the extensive works of the National Fireproofing Company, which lies between Wesley and Summer streets, on Bedford avenue. The Wylie and Bedford cars pass directly by the plant, which was built originally in 1889 by the Booth-Flinn Co., Ltd., and known as the Pittsburg Terra Cotta Lumber Company.

The early history of the plant is crowded with tribulations and disasters, culminating in a fire which destroyed the whole outfit. That the plant was rebuilt and started again is no mean tribute to the pluck and energies of the original company, and that it was afterwards bought and operated by the present owners and the business increased to more extensive proportions and made a most profitable venture, speaks well for the sagacity and generalship of Mr. W. D. Henry, the executive head of the National Fireproofing Company.

They have several acres of shale that tower up above the level of the works some 50 feet or more. The clay, which is almost as hard as rock, is blasted with dynamite and then carted to the dry plants, pulverized quite fine and elevated to the top of a tall building, passed over screens which separate and send back to the crushers any pebbles or tailings that escape the grinders, and the screened or powdered clay conveyed through a long chute to an adjoining building, where it is again carried by cup and belt elevators and conveyed to large pugmills, in which an equal amount of sawdust is added and the entire mass mixed thoroughly and fed into a Freese tile machine, from which it is forced through dies of various shapes as the work demands, and cut into suitable lengths either by hand or by machinery, according to circumstances.

Our camera caught the hand gang at work and the

picture tells the tale better than words. As the stream of mixture of clay and sawdust is forced out of the machine, a wooden form or mitre box is placed on it, and with a few strokes of a hand saw the block is cut off and placed on wooden pallets. The blocks are then stacked on iron cars and run into a steam-heated tunnel dryer, and from thence to either round, down-draft kilns or ordinary up-draft clamps. Only a small portion of the ware is burned in the latter, most of it going through the round kilns, of which there are a large number. The porous fireproofing or terra cotta lumber, being nearly 50 per cent. sawdust, burns quite readily, but the hard or dense ware requires a high degree of heat and a lot of it.

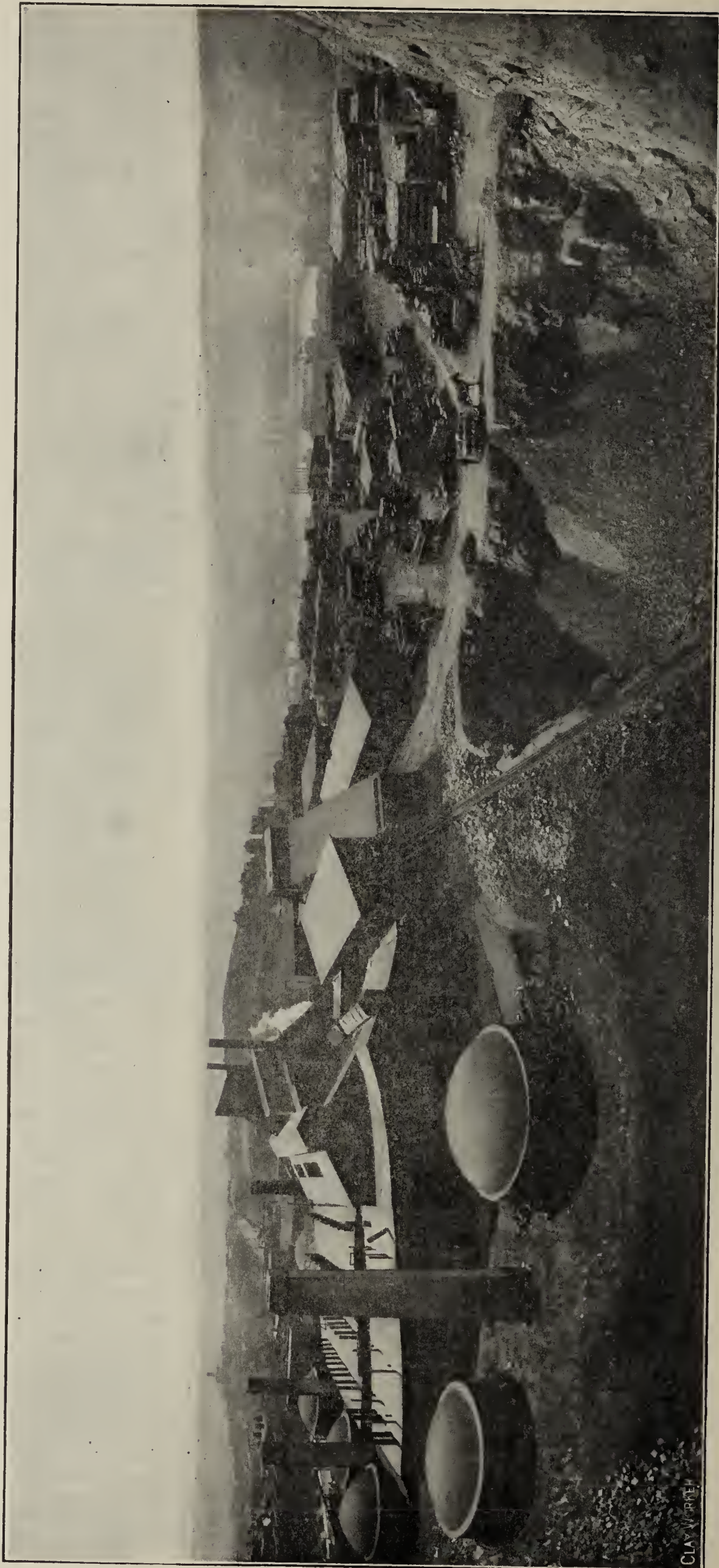
The following data relative to the establishment and growth of the business may be interesting to the reader: The Pittsburg Terra Cotta Lumber Company was organized in the year of 1889, under the laws of Pennsylvania, with \$100,000 capitalization, and with the view of not manufacturing, but of licensing others to manufacture, under the Gilman patents, and buying from these manufacturers and setting the material in buildings. The first licensed company was Booth & Flinn, Ltd., who made the material for the Pittsburg Terra Cotta Lumber Company for about two years. This arrangement proved unsatisfactory to both parties and an agreement was reached between them by which the Pittsburg Terra Cotta Lumber Company purchased the plant of Messrs. Booth & Flinn, increasing the capital stock at the same time to \$170,000.

This is the oldest plant of the National Fireproofing Company, which now has plants in almost every section of the country, doing an enormous business, and having the reputation of being the greatest fireproofing company in the United States.

INTERESTING, IF TRUE.

Mixed among the items of the science and miscellany department of one of our leading dailies is an item about a new Danish material for brick, which reads as follows:

"A new Danish material for bricks is what is known in Jutland as 'moler,' a foliated diatomaceous earth existing in large deposits, but hitherto of no use. It was tried at first as an ingredient of sand-lime bricks, but proved unfitted for the purpose, and was then used with marl and red clay by the Danish States Testing Laboratory. Experiments were made at last with moler alone. The material burned to an unexpectedly fine red brick, which is very light, with about the specific gravity of water, and so tough that a nail can be driven through without cracking. Too porous for work exposed to water or the weather, these bricks promise admirable service inside, as in floors and partitions. They are a remarkably poor conductor of heat and have great fire resistance, and are thus adapted for furnace linings and boiler masonry."



BIRDSEYE VIEW OF THE PITTSBURG PLANT OF THE NATIONAL FIRE PROOFING COMPANY.

CLAY-WORKER

Written for THE CLAY-WORKER.

THE CLAY PRODUCTS LABORATORIES OF THE TECHNOLOGIC BRANCH, UNITED STATES GEOLOGICAL SURVEY.

IN 1908 the War Department granted the technologic branch of the United States Geological Survey the use of the old government arsenal, which was established nearly 100 years ago and is one of the landmarks of the city of Pittsburg. It is located between Thirty-ninth and Fortieth street, facing Butler street, and may be easily reached from



Clay Products Laboratory Building, Pittsburg, Pa.



One of the Laboratory Test Kilns.

the Fort Pitt hotel in about twenty minutes by the Butler street lines.

The technologic branch has for its purpose the study of the various mineral products from the technical standpoint, and with special reference to the materials used or owned by the government. Thus the coal used by the different governmental departments is here tested and purchased on its heating value. Similarly, paints, asphalt, structural steel, wire ropes, bricks and other structural clay products, cement and concrete are examined as to their fitness for the purpose for which they are bought, thus insuring to the government a high quality of these materials. In addition, as far as the regular testing work will permit technical investigations are

being carried on in connection with the use of coal, with special reference to the utilization of the low grades of fuel. Other problems investigated are the briquetting of lignites, the strength, fireproofing and weather-resisting and other properties of clay products and concrete, the utilization of by-products and other problems of value and interest to the industries. The results of this work are published and distributed to those interested free of charge.

In addition to these lines of work an exceedingly important feature of the technologic branch is represented by the mine accidents division, in which, by means of elaborate experiments, the causes of gas and coal dust explosions are studied with a view of preventing them, as well as the study of devices for saving of life in mines. This work is full of dramatic interest, since the men engaged in it are frequently called to active duty in mines. The work performed by these men in the last two years is well known and appreciated, so that further description is unnecessary.

Naturally, most clayworkers are principally interested in the division of structural materials, of which the clay products section is a part. The laboratories of this section are to be found in building No. 10, formerly one of the old



The Kiln House of the Clay Products Laboratories.

warehouses of the arsenal, occupying ten rooms, and the kiln house newly erected close to the building.

On the second floor the chemical and physical laboratories are to be found, in which the more exact work is being carried on. These are provided with the necessary apparatus, such as elutriators, shakers, volume meters, balances, sieves, electric furnaces, etc. The section offices are likewise located on this floor.

The first floor is used for the heavier work and its rooms are equipped with a grinding pan, crusher, ball mill, brick machine, represses, filter press, steam and hot air dryers, air compressor, standard brick rattler, screen and other necessary appliances. In a separate room also testing machines are provided for the determination of crushing, bending and tensile strength, with capacities of 100,000 and 200,000 pounds. A structure at the end of building No. 10 contains a vertical testing machine with a capacity of 600,000 pounds.

The kilns are housed in a neat brick building, well lighted and ventilated. Here two down-draft test kilns are installed, fired with natural gas, in which the clays are burnt under conditions approaching as close to those of practice as possible. Their construction is such as to insure almost perfect uniformity of temperature, which is controlled by means of cones, pyrometers and draft gauges. For high temperature work, one gas and one electric furnace are provided. A spe-

Interesting Scenes in and About Clay Products Laboratories



A Corner in the Chemical Laboratory.



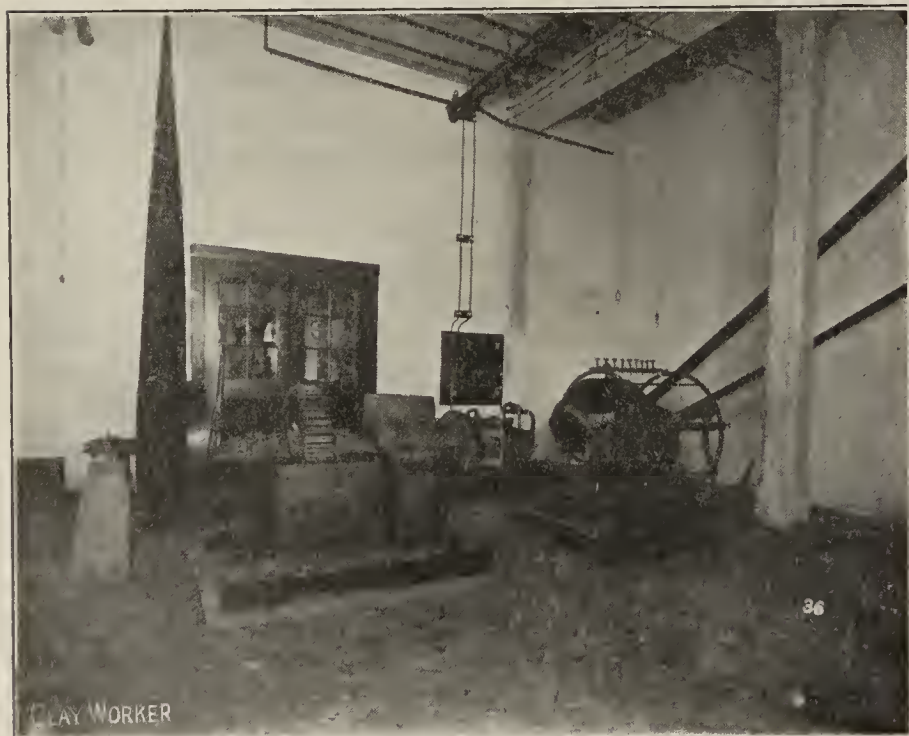
Testing Room for Crushing, Bending and Tensile Strength Determinations.



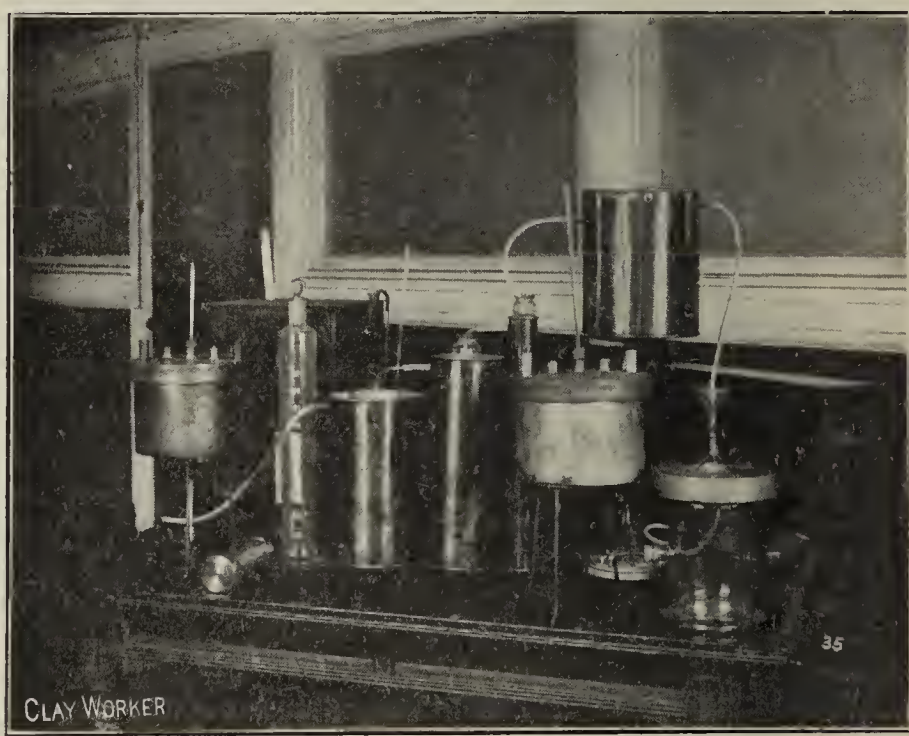
Rescue Drill in the Mine Accident Section.



Gas Engine Run by Producer Gas Generated from Low-Grade Fuel.



Machine Room, Clay Products Laboratory.



Some of the Physical Testing Apparatus.

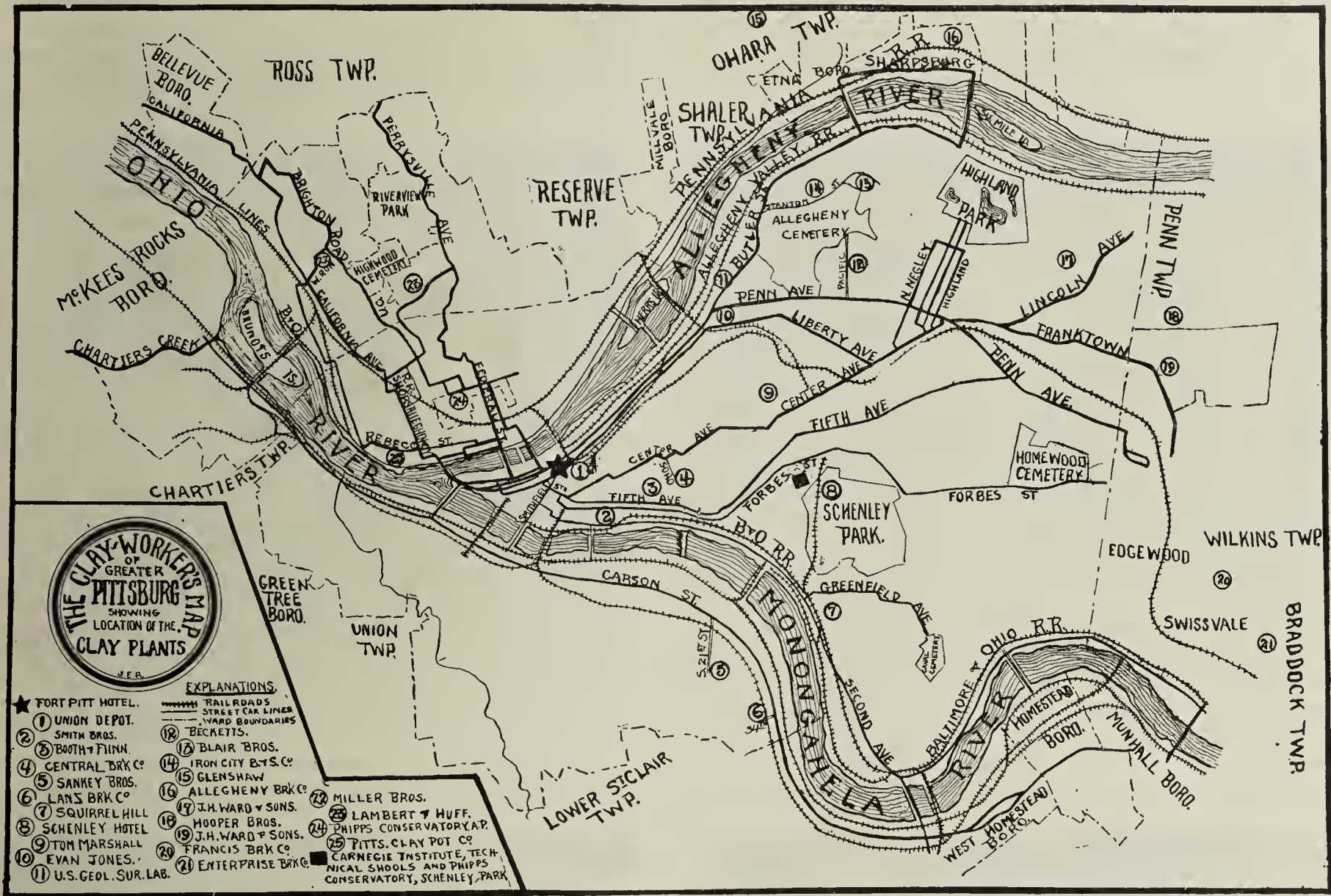
cially constructed furnace is used for the testing of fire brick, a new line of work which has been very successful in bringing out most interesting results. A principal part of the work of this section is the carrying on of government tests with reference to public buildings and other construction work, especially for the supervising architect, the Isthmian Canal Commission, and the reclamation service.

In regard to the investigation work, the problems attacked are such as the working out of specifications for building and fire brick, the fire and frost resistance of clay products, the adaptation of the excessively plastic clays of the west for brickmaking, the study of the clay casting methods for making bulky clay wares, such as retorts, glass pots, etc., the study of the toughness of burnt clay, the study of the elimination of lime in clays, and similar problems of general interest to the clayworking world.

The clay products section co-operates with the other sections as much as possible, thus insuring the thorough treat-

plants. From Pittsburg one can go in almost any direction and within a few hours' ride reach clay plants which are unusually interesting and important in their field. To the north and northeast are such cities as Beaver Falls, New Brighton, Ridgway, Kittanning, Bradford, Corry and Bessemer, where there are plants known the world over for their excellent products. The Bessemer Limestone Company, manufacturing high-grade paving brick, at their plant at Bessemer, will be hosts for a number of excursion parties around convention time, for their Haigh continuous kiln, the largest in the world, has attracted much attention during the past year, and is doing excellent work.

Plants of almost every description are found in this belt with the Bradford brick plants making the famous "Bradford Reds," Corry, Kittanning and Ridgway making excellent face and building brick, and Beaver Falls and New Brighton pottery, mosaic, tile, flower pots, jugs, etc. Over in Ohio, Wells-ville, East Liverpool and Newell and a score or more other cities are veritable beehives of potteries and various kinds



ment of the problems attacked, as, for instance, in the study of the strength of materials, the use of producer gas, and similar topics. It will be seen from this brief description that this new department is endeavoring to serve the government and the clay industries in the best and most rational manner possible, and that it deserves the support of all workers in clay.

THE CENTER OF A GREAT CLAY DISTRICT.

While Pittsburg in itself is a great brick manufacturing city, it is also the center of one of the richest clay belts or districts in the country. Within a radius of a hundred miles of the "Convention City," there are hundreds of clayworking plants. Located as it is within almost hailing distance of Ohio and West Virginia, it is the mecca towards which investigating clayworkers may turn their faces in their trips of inspection through the country's best clay

of clay plants. East Liverpool has over thirty large potteries within its city limits. The banks of the Ohio river from Pittsburg to Cincinnati are dotted with clay plants, and northern West Virginia and southeastern Pennsylvania are equally well supplied with clay factories. With such fine plants so easily reached from the "Convention City," plants which are making all kinds of brick, including face, common, hollow, paving, fire and silica brick; sanitary ware; tile, drain, floor, wall and mosaic; fireproofing, porcelain insulators, etc., etc., there can be little doubt as to Pittsburg's attractiveness as a "Convention City" for the clayworkers.

Perhaps the point of most interest and one which will be visited by all delegates convention week is the clay products laboratories of the technologic branch of the United States Geological Survey, located in the old arsenal grounds, and easily reached by the Butler street car. Mr. A. V. Bleining and his assistants, who have done such excellent work along claytesting and in research lines, will keep open house and extend the glad hand to all visitors.



PITTSBURG CLAY POT COMPANY'S PLANT.

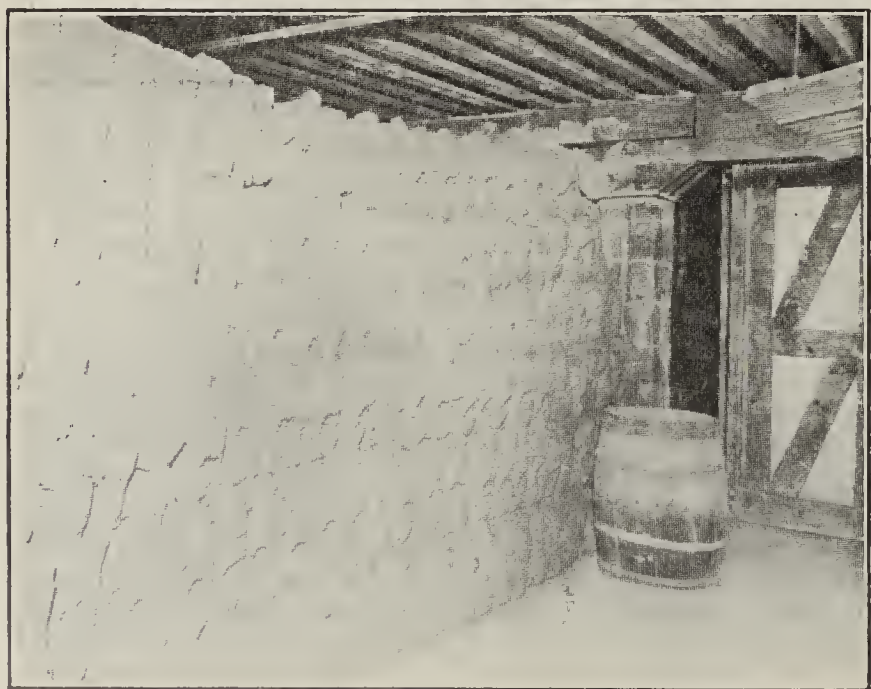
A CLAY INDUSTRY in Pittsburg about which the average clayworker knows little, though a most interesting one and of utmost importance to our big glass plants, is that of clay pot manufacture. No branch of ceramics needs more skill and care in the selection of the raw materials than this one, and every department must have the closest attention to details in each step of the work. The selection of the raw materials, consisting of both American and foreign clays, the close inspection of the broken burnt pieces of old pots, the grinding, mixing, pugging, tamping, building, drying and burning makes this industry a distinct branch in clayworking, and one necessarily only entered by the skilled technical man after years of experience and study.

There are a number of glass pot manufacturers in this country, but they can easily be counted in double figures. The Pittsburg Clay Pot Company has the distinction of being the second oldest glass pot plant in America.

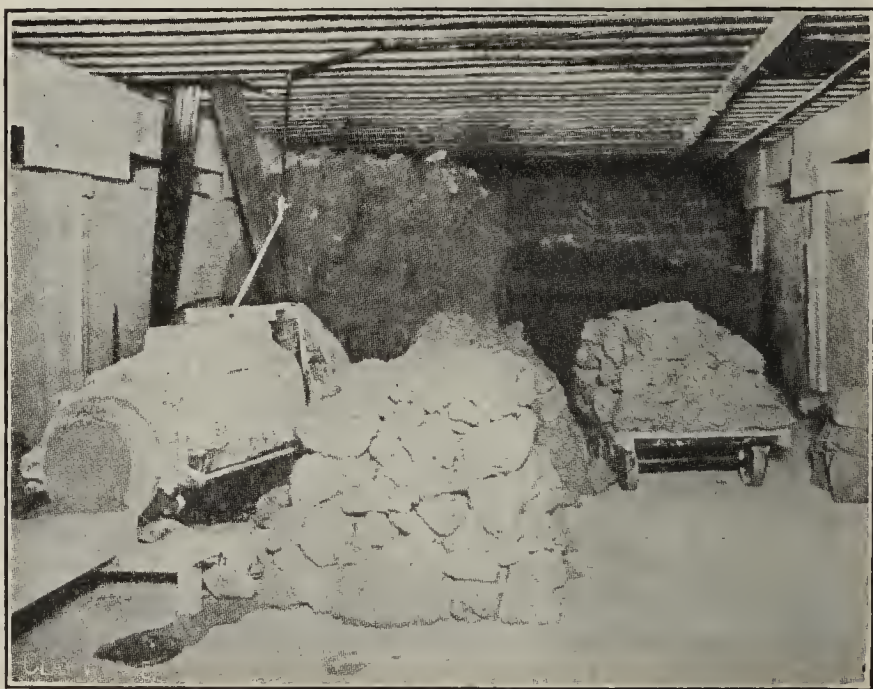
A little of the history of this industry is told by Messrs. Reis and Hervey Leighton in their book on the "History of the Clayworking Industry in the United States":

"It is probable that the manufacture of glass pots in this country was begun with the installation of the first glass factory, but in those days, and, in fact, until 1860, it was the custom for glass manufacturers to make their own glass melting pots, the clays being imported from England and known as Stourbridge clays. The Stourbridge clays continued to

be used to some extent in this country until the early sixties. The German clay has also been used for a number of years, but it is not known just when its importation began. About the year 1858 or 1859 the Missouri plastic clays were introduced. These clays are found in the neighborhood of St. Louis, in what is known as the Cheltenham district, and were called "Cheltenham clays" in those days. This clay was introduced by a man named Christy who induced James B. Lyon, of the O'Hara Glass Company, of Pittsburg, Pa., to try it for the manufacture of glass pots. It proved to be an excellent clay for that purpose, and has largely supplanted foreign clays. The manufacture of glass house pots as a business for the purpose of supplying the wants of the glass manufacturers in that line was first started by Thomas Coffin in Pittsburg in 1860, and until 1879 this remained the only potmaking plant. In that year the Pittsburg Clay Pot Company was organized and is still in operation. As the business in the melting furnaces progressed in the United States it was found that both the Stourbridge and German clays lacked the refractory qualities to stand the temperatures employed, but that while the Missouri clay supplied this defect, it was not able to resist the corrosive action of the molten glass as well as the German clay. The Stourbridge clay is no longer used; clay from Mineral City, Ohio, is employed by some, as well as Pennsylvania clays, but not in those parts that come in contact with the molten glass. The manufacturers have therefore had to use different mixtures for different parts, the same as they had to resist coro-



Corner of One of the Clay Aging Bins.



Clay Being Pugged Preparatory to Being Stored.

sion, heat, changes of temperature, etc. As an example, one firm uses for its pots a mixture consisting of Missouri raw washed clay, 2,469 pounds; Missouri burned washed clay, 2,250 pounds; German washed clay, 1,481 pounds, and old pot fragments, 3,800 pounds. The proportions used by the different manufacturers, however, vary, some use more Missouri and others less."

The Pittsburg Clay Pot Company uses a variety of clays, both foreign and American, among which the most important are the German raw and calcined clays, and Missouri wash clay. The greatest of care is exercised in the preparation of these clays, as the slightest defect in the pots caused by an impurity or imperfect mixture oftentimes results in a broken, worthless pot, the loss of a valuable batch for the glass manufacturer, and injury to the business of the potmaker.

The clays are therefore carefully analyzed and sorted before crushing and grinding. The raw materials are stored in individual bins and used as needed. The clays and old pot shells are ground and mixed in certain definite portions, as the material to be made demands. The grinding is done in Stevenson dry pans, made at Wellsville, Ohio. A special mixing machine is used, weighing the material automatically. After proper mixing the material is pugged in three Stevenson pugmills and seven Wonder pugmills.



Scene in One of the Pugging Rooms.

The pugging is an important step in the work, for the batches of clay must be absolutely the same throughout the whole of the mixture. To reach this stage of perfection the clay is worked through a process of pugging, tamping and aging four or five times.

From the pugmill the clay is taken to the tamping floor by means of cup elevators, where men and boys tamp the clay with their bare feet. The clay after the first tamping is spaded and thrown into a pile close by, where it is again tamped in layers. By degrees the pile reaches a height of about 1½ feet, being about 10 to 15 feet long and 3 feet wide. The pile is then wrapped in cloths to keep out the foreign matter and allowed to age slightly before again being run through the pugmill. After the final pugging the clay is stored in the clay cellars, where it is left for from one to two years. These clay cellars are located in the basement at the farthest end, while in the center rooms are located the mills and grinding and mixing machinery, all having separate rooms, thus making the pug rooms as dustproof as possible, and free from dirt and foreign matter that would be detrimental to the clay. At the opposite end of the building in the basement from the ageing rooms are the rooms used for the storage and cleaning of the old glass pot shells. A large force of men is employed here, whose only task is to chip

the glass from the broken shells and make them ready for the grinding.

The company makes a variety of glass plant supplies that need different mixtures, hence there are distinct divisions in the pugging and in the clay cellars. When properly aged the clay is elevated in cup elevators to the department wherein it is used.

All the products are made by hand and range in weight from a few pounds to a ton or more. A pot was turned out recently which weighed 3,200 pounds. Of the products built here, the most important are the glass melting pots, tank blocks, furnace linings, rings, stoppers, floaters and boot legs. The chief one of these is the covered pots for lime, lead, opal and colored glass.

It is interesting to watch the work of building these immense pots which weigh close to two tons. The bottom of the pot is first made. A girl makes small rolls of clay which the workman takes, using one at a time, kneading the clay as he forms the bottom layer. The bottom is from 3 to 4 inches in thickness and covers an area of about 15 square feet. After the bottom has been made the sides are built up 6 to 8 inches at a time, the workman kneading the clay in about the same fashion as he did in making the bottom, building the walls up solid and true in this manner. Each workman is supplied with small rolls of clay by girls who



Men Tamping the Clay With Bare Feet.

are busily engaged in that work alone throughout the working hours. Each workman has close to eighteen pots in different stages of construction, only adding as much to a pot each day as the slow drying will allow. It takes one man and a helper one month to make eighteen pots, the tops of the pots taking the longest time in the making, owing to the curvature.

These pots are allowed to stand on boards on the drying floors until the mechanical water is entirely evaporated. This takes from five to twelve months. The drying floors, of which there are five, cover an immense area of floor space in the large five-story brick building. After the first drying the pots are placed in the drying rooms proper, where a temperature of 95 to 102 degrees is maintained constantly. The pots are left in the dryers from six months to a year, and then taken on trucks to elevators and down to the first floor to the kilns.

Over 200 men and girls are employed in the plant, and about 1,200 tons of clay are used monthly.

Mr. J. W. Kunzler is the superintendent of the plant and has been in full charge of the work for the past three years. He learned the business with the Thomas Coffin Company, of Pittsburg, which is now known as the Woods-Lyod Co. Before taking up his present work he had had experience in many glass factories also, and had followed the work from

beginning to end, thus equipping himself well for his present position. Since he has taken up the business of the Pittsburgh Clay Pot Company he has remodeled the plant, doubled the capacity, installed lighting and steam heating systems, and made the factory as sanitary and complete as possible. The recently completed extensive improvements and alterations of the plant in the way of new improved machinery, new kilns and increased floor space, has greatly increased the capacity in all departments and enables them to carry a much larger stock than formerly, and to execute the orders promptly.

In closing, we might say to those not familiar with the size of the works that in their pot department alone they carry a stock of from three to four thousand pots, dry and in the process of drying, while their block department has the largest capacity of any tank block factory in the country, the whole plant containing more than ten acres of floor space.

PROPER USE OF CLAY MATERIALS IN BUILDINGS.

The most fruitful source of restlessness in design is probably an unfortunate striving for "variety," frequently taking the form of a use of materials so many and varying that the suggestion of an experimental collection of specimens unavoidably arises. Generally speaking, the fewer materials used in



Department Where Pot Shells Are Cleaned.

the fronts of a building the better in scale will be the results. Too often buildings are of brick with stone trimmings, tiled porches, and black and white tiled front courts and cast iron railings, the reverse of homelike. The mere provision of coarse stone sills is sufficient to mar an otherwise modest brick building. A building should never convey the impression that it has been trimmed, nor should it by a confused mixture of material engage the doubts as to whether it is essentially a brick or stone building. Again, though a brick building may be successfully treated with stone trimming without any disturbance of its effect, to treat a stone building of any pretension with brick trimmings would be a palpable absurdity, since stone as the nobler material could not be considered as adorned by brick. It follows that when brick is used with stone it is safer that it should predominate bulk by bulk, so that the effect is that of a brick building. It would be absurd to claim glazed brick as a modern material, remembering the many examples of its use in the ancient architecture of the East, but it may at least be said that the use on a large scale of glazed substances for the facing of buildings is of comparatively recent development, and one for which many advantages may be claimed. Cleanliness and brightness at once occur, though dinginess is often more

apparent than either, unless frequent cleaning is observed. In glazed brick, when used in large quantities, variety of color within natural limits is of the greatest charm, and for this reason salt-glazed brick are to be preferred to the more expensive dipped or enameled brick, as they are undoubtedly more durable in exposed positions, and now that some manufacturers have discovered means of producing in salt glaze other colors besides the familiar red-brown, the field is open for many effects.—Building World, No. 738, 1909.

Old Wedgwood Dinner Set.—The masterpiece of the old English potter, Josiah Wedgwood, a dinner set, which he



Section of the Kiln Room.



Large Pots on Drying Floor.

made for the Empress Katharina of Russia in 1773, has been discovered again in the cellars of the Castle "Peterhoff," through the efforts of Dr. G. C. Williamson, of London. The original set had 952 pieces and 800 have been found again after 135 years of obscurity. The set has some 1,200 different views of castles, parks, bridges, landscapes and monuments of English origin. It took Wedgwood eight years to complete this order, and he was paid £3,000 for it, while it cost him over £4,700. Dr. Williamson has been given the privilege of photographing the remaining pieces and these pictures will be exhibited later.—Sprechsaal, No. 45, 1909.



Crystal Glazes on Soft Porcelain.—In a very interesting article, Dr. Heinicke, director of the Royal Berlin Porcelain Manufactory, describes the methods and the formulas used for the making of crystal glazes with titanitic acid. The article is illustrated with several cuts of crystal vases.—*Keramische Rundschau*, No. 49, 1909.

Russian Pottery.—The Russian Emperor has decided to present the Peace Palace in The Hague with a porcelain vase of large dimensions. The Imperial Porcelain Manufactory in St. Petersburg is now preparing the plans, and a prize of 1,000 rubles has been set aside for the best design. It will be an open competition for all artists.—*Keramische Rundschau*, No. 41, 1909.

Preventive for the Settling of Glazes.—When chemicals can be used, the settling will be prevented by the use of ammonium nitrate, carbonate and also acetic acid. When chemicals can not be used the glaze should be given a larger proportion of unburnt plastic clay, which will hold the non-plastic materials longer in suspension. A substitution of ball clay for the kaolin used will also often give the desired results.—*Keramische Rundschau*, No. 45, 1909.

Standard Size Brick of Denmark.—The British standard size of brick was adopted by the different brickmakers in 1906. The size is 9 1-16 x 4 3/8 x 2 1-16. The National Brickmakers' Association adopted this plan and many of the brickyards which were not members of this association are using this standard size also. However, of late some manufacturers have increased the size of the brick, and in many cases this increase amounts to more than 10 per cent. of the weight of the brick. The Danish publication, "*Lerindustrien*," has taken an active part in this matter and has requested all members to stand by the old standard size.—*Lerindustrien*, No. 18, 1909.

German Labor Conditions and Strikes.—According to the "*Statistics of the German Empire*," there were reported in 1908 1,347 strikes, against 2,266 in 1907 and 3,328 in 1906. There were also 919 less strikes in 1908 than in 1907. The general manufacturing condition in 1908 was very unfavorable, and in many cases the workingmen were only too glad to work without having to strike. Six thousand five hundred and thirty-two factories were concerned in these strikes, and it affected 112,110 workingmen. Of this amount of strikes, 52.7 per cent. were won by the workingmen, and building trades were the most affected by the strikes.—*Sprechsaal*, No. 42, 1909.

The Burning of Silica Brick.—The best kiln for the burning of silica brick is the round, down-draft kiln. The kiln should not be too big, as otherwise the results are too variant and the brick will not be burned hard enough. In setting a kiln the lower courses should be set with regular fire brick, and also the softest parts of the kiln should be set with fire brick. The regular temperature for burning is between Cone 14 and 15, and during the last year many factories burned between Cone 12 and 13. It takes about ten hours to dry and water-smoke the kiln, and then in five or six hours the full firing period should be obtained. In twelve hours of full fire the burning is finished. This system

of burning will vary some on account of the different nature of materials used, but as a general rule it can be relied upon as being the best way to obtain good results.—*Tonind Z.*, No. 120, 1909.

English Ceramic Society.—The first meeting of the English Ceramic Society for the season 1909-1910 was held in Stoke on October 18 last. Dr. I. W. Mellor gave a very interesting lecture, in which he very sharply denounced the attack which Professor Purdy has made on Dr. Jackson. He further denounced the experiments made by Professor Purdy with crom-tin-pink as not being conclusive, and that the obtained results have no value for the practical trade. After a lengthy discussion, in which many members declared the same views as Dr. Mellor, the meeting was closed to meet again in the middle of November.—*Keramische Rundschau*, No. 48, 1909.

"Not British" in Place of "Made in Germany."—The term "Made in Germany," which has caused so much trouble for the English manufacturers, will be, before long, abolished, and the new term "Not British" be substituted. The old trade mark act will be amended to that effect, and the English government hopes to help the home manufacturers with this idea. It will in a way be very aggravating for the German manufacturers, as the term "Made in Germany" was stamped on all export ware, regardless to what country it was exported. Under the new rule, by the use of the term "Not British," the export country will not be advertised any more.—*Sprechsaal*, No. 47, 1909.

German Labor Conditions.—Labor conditions are somewhat different in Germany from what they are in the United States. As an example of the steadiness of the working men can be cited the case of the employes of the porcelain factory of Conta & Boehmne, of Poeszneck. This factory has among its employes 187 men who have worked in this factory between twenty and thirty years. Among these employes the company distributes every year the interest of a special fund, which is called the "*Conta-Stiftung*." This fund was established by the president, Carl Conta, in 1903, and amounts to 50,000 marks. This distribution takes place every year on October 18, the birthday of the former president.—*Deut. Topf. & Z. Z.*, No. 92, 1909.

French Freight Rates.—The French Secretary of Public Works has just published some new rates in regard to carload lots and less carload lots. The tariff is divided in three parts: First, for freight weighing less than 100 pounds; second, for freight weighing less than one ton, and the third division is carload lots of five tons and more. The rate charged depends on the distance the freight has to be transported, and the following table will give a good idea of these charges:

	Class I.	Class II.	Class III.
For the first fifty kilometers, per kilometer	Fr. 0.09	Fr. 0.08	Fr. 0.06
For every kilometer between fifty and 100 kilometers	0.09	0.045	0.04
Between 100 and 150 kilometers	0.09	0.045	0.04
Between 150 and 200 kilometers	0.07	0.045	0.04
Between 200 and 275 kilometers	0.07	0.0375	0.04
Between 275 and 300 kilometers	0.07	0.0375	0.03
Between 300 and 500 kilometers	0.06	0.0325	0.02
Between 500 and over.....	0.05	0.0325	0.02

This change in rate was made with the understanding that the former initial charge of rate for the first 275 kilometers should be abolished. One kilometer is 0.62 miles, and the charges are expressed in francs, which value 20 cents.—*Moniteur de la Ceramique*, No. 21, 1909.

Written for THE CLAY-WORKER.

BRICKMAKING IN ARGENTINE REPUBLIC.

A Fine Opportunity for Machinery Men.

"IN MY JUDGMENT there is a great field in Argentine Republic for brickmaking machinery," said George M. Rommel, animal husbandman of the Bureau of Animal Industry, who but recently returned from a trip to that country in the interest of the Department of Agriculture.

"All of the houses in the city of Buenos Ayres are either of brick or stone. There appears to be an abundance of both, and as lumber is very high, practically out of reach for every common purpose, these two materials are used. When you take into consideration that the city is one of the important ones of the world, having a population of over 1,000,000 people, you can form some idea of the quantity of brick used there. The brickyards that I saw there were out in the country and seemed to be full of business.

"But the thing which attracted my attention to brick-

is not in evidence is not any stranger to me than many other things I could not understand. For over ten years the people of this country have been inviting American-made machinery and goods to come into their country. They have been ready and anxious to do business with Americans. They have a wholesome respect and admiration for Americans and American methods and ways of doing things, yet in all this time American interests have been absolutely indifferent to their opportunities in this great, big, growing, prospering country. It is a big field. It is a wealthy country. It is an intelligent people, yet for some unknown and unaccountable reason, no attempt has been made to cultivate this field of opportunity. Germany and England have already secured a foothold there in a commercial way, but with all that the people of Argentine Republic will welcome the American business man if he does not put off coming too long. I found that they are beginning to feel that the American does not want their trade, and it will not take much more time for them to give up hope and take on some of the European nations that are gaining ground there.

"The picture of the horses shows the primitive methods



Primitive Method of Mixing Clay at Brick Plant in Argentine Republic.

making more than any other thing was the use of large blocks for walls around the farms instead of board fences. These walls took a large amount, for they were wide and high and long. The blocks were, of course, large and coarse, but all made from shale, of which there appears to be an abundance. Then the houses of the poorer class are adobe, while the farm houses and those in the smaller towns of the better class of people are of brick, some of which are finished quite well, but none of them as nice as our brick here in this country.

"Another thing I noticed was that the houses were frequently plastered over on the outside with a coat of common plaster carrying a small quantity of cement. In the course of time this plastering cracks and falls off. That the brickmakers are not equipped for making better brick is evidenced by the use of brownstone rock for paving instead of brick. At no place during my travels over the country did I see any brick paving, although brick houses were on every hand.

"Just why brickmaking machinery from the United States

employed in making brick. The ponies are used to mix things preparatory for the molding process. This is not an isolated case, but can be found at a number of places.

"I might say in connection with the brickmaking industry that Welch coal is used very largely down there. I understand that Virginia coal could be sent down there as ballast and meet this coal in competition. How true this is I do not know, but think it is worth looking into. At the present time the merchant marine between the United States and that country is very limited. In fact, I only saw the American flag three or four times during my entire trip, and then on small lumber schooners. The opportunity in this line is there if the Americans would go after the business."

The man that buys an auto and the man that buys a rubber plantation soon come to different conclusions about the value of rubber, but both will generally agree that experience is an expensive teacher.

Written for THE CLAY-WORKER.

BRICK NOTES FROM THE SOUTHLAND.

BUILDING CONDITIONS at this season look favorable throughout the south. At Memphis an immense skyscraper is to go up, also the West Tennessee Normal School. At Chattanooga the Hamilton National Bank will erect an office skyscraper, and there is considerable work on at Nashville and Knoxville.

The Southern Clay Products Company, in the James building, Chattanooga, report business very good.

The Chickamauga Quarry and Construction Company re-

uning behind on orders until December 1. This firm furnished the brick for the Model mill at Johnson City, an order of about 300,000; for the Jellico Grocery Company at Jellico, Tenn.; for G. M. Broshiver, of Middlesboro, Ky., about 200,000. Recently they also furnished 200,000 brick for the L. A. Galyon store building at Knoxville, and for the large high school building.

The Alex Scott Brick Company, of Knoxville, has lately furnished the common brick on a high school building and about 1,000,000 brick for the C. & O. R. R., and still has about 1,000,000 brick on hand.

J. F. Scott & Son at Scottsville, Tenn., near Knoxville, furnished the brick for the big Atkin hotel being built



Street Scene, Avenida De Mayo, Buenos Ayres. All Buildings Shown Are of Brick Construction, Plastered on Outside. In the Distance is Government House, Called "Pink House," Built of Brick and Covered With Pink Plaster.

port building activity good in the Chattanooga territory. They now have the contract for considerable culvert work on the Rossville road. They are furnishing material for the Birmingham Water Company at Leeds, Ala.

O. E. Deppen, general manager of the Chattanooga Sewer Pipe and Fire Brick Company, has just returned from a business trip to New Orleans. Business has been very quiet, Manager Deppen states, but he hopes for a better business during January. The former quietude is due to inactivity among the coke ovens for the past two years.

The Knoxville Brick Company, of Knoxville, Tenn., states that their brick trade is unusually good for this season of the year, both in the city and out of town. They were run-

in Knoxville by C. B. Atkin, the mantel manufacturer and owner of the Colonial hotel.

Lon C. Hill has organized a company at Harlingen, Tex., that will establish a brick plant. The capacity will be 40,000 to 50,000 brick daily.

W. T. Ingram, of the Trenton Lumber Company, is handling fire brick and other building materials in connection with his lumber business. There is considerable activity in interior West Tennessee and the firm is enjoying a good business.

At Nashville, Tenn., this month, W. A. Campbell and Quinn & Ellis were the successful bidders on two small contracts let by the Board of Public Works. One of the con-

tracts was for a clay pipe drain in the Gallatin road.

The Burke Brick Company at Ft. Smith, Ark., has been building seventy miles of vitrified brick paving there on a sand foundation, under special contract from the city. This firm manufactures both vitrified and common brick. The Burke-Andrus Co. is an allied corporation at Ft. Smith which is giving large attention to the sand business and dredging the Arkansas river for sand.

DIXIE.

PACIFIC COAST NEWS.



BUILDING OPERATIONS in San Francisco have slowed down a little during December, although not as much as was expected by the brick dealers. This is the time of the year when building activity is supposed to be at a minimum on account of the rainy season, but the owners of business property do not seem to be able to wait for fair weather, but let the money market guide them in putting permanent structures on their property. The month of November seems to have been the banner month of the year, when the figure for the building permits soared up to \$2,540,897, and it was a surprising fact that the value of the building permits for December did not trail far behind, the total amounting to \$1,938,561. This last figure brought the totals for building operations for the year up to \$28,540,288, and for the period since the fire up to \$152,592,445.

These are figures for the end of the year, but not the end of building operations in this city by any means. The coming spring gives good indication that buildings will go up at a greater rate than during the past year, not only from the fact that the wooden structures in the fire district are supposed to be all torn down by next spring, but also from the fact that the state and the Pacific Coast are in an era of financial prosperity, which means greater building activity in San Francisco and in the other cities of the coast. The plans for a number of large apartment houses, hotels and office buildings have been drawn and will be put into execution as soon as the winter months are over. The following are a few of the many contracts that will be let within the next few months: City hall at Pomona, Cali., \$40,000; Native Sons of the Golden West hall in San Francisco, the front to be faced with pressed brick and terra cotta, \$20,000; two flats to cost respectively \$10,000 and \$40,000, and a museum in Seattle for the Washington State Art Association, \$350,000.

The outlook, according to the above, looks rather promising, yet the brick market is in a chaotic state and is expected to remain so. After the fire a good many brick factories came into being with offices in this city, and all of them prospered during the rebuilding period, but now since building operations have become normal again the market is suffering on account of overproduction, and, consequently, many of the smaller plants had to shut down temporarily because the business has become unprofitable. Thus the market has become centralized more or less till now only a few plants are running continuously and with the full number of men. Common brick are quoted at \$7.00 per thousand, as for some time past.

N. Clark & Sons are putting up a three-story brick building of their own to accommodate increased storage of stock. The building will have two fronts, which will be coated with enameled white glaze and terra cotta in polychrome effects. The plant is now manufacturing terra cotta for the Denman school in San Francisco, for the Harris apartments in this city, the building material for the Elko county court house in Elko, Nev., and the terra cotta and brick for the St. Francis hospital in this city.

The United Materials Company has just closed the contract for furnishing tile to the San Mateo Church in San Mateo, Cali. This tile is to have a green-tinted ruffled surface, and is intended to imitate the early English style. This

is the first time a tile of this kind has been made on the Pacific Coast, and it is expected that more orders will be placed for this brick as soon as its beauty is shown. It is made by the Los Angeles Pressed Brick Company.

It is reported that E. B. McNear will open a common red brick agency in conjunction with a lime and cement agency, and will handle and sell the bricks manufactured by the McNear Brothers Company. The McNear Company formerly sold their brick through a local building material agency, but the contract has now expired and all the brick will be handled by the new agency.

The Carquinez Brick and Tile Company is running at full capacity in its plant, and is managing to get a share of the brick business in this city, but with little profit on the transactions. The company looks forward to a great rush of orders during the next few months.

The Pacific porcelain and pottery company has purchased a site in Richmond, Cali., and will erect a \$60,000 plant at once. It is expected that from seventy-five to 100 men will be employed. This company has a contract with the Pullman Company to supply the table china, and has a factory wherever a repair shop of the car company is located.

The Holt & Gregg Co. has commenced the construction of a continuous brick kiln at the brickyards two miles north of Anderson, Cali. The kiln will have fourteen compartments and the fire will be kept going year in and year out. The company will burn about 7,000,000 brick a year. Heretofore wood has been used as fuel, but wood has become so scarce that Australian coal will be used in the new kiln.

Gladding, McBean & Co. have secured the right to maintain and operate a branch railway track upon and across certain streets in the town of Lincoln, Cali. This will greatly facilitate the shipment of brick from the kilns to the market.

The Simons Brick and Tile Company's plant at El Centro, Cali., which was built a short time ago to supply the great demands of the Imperial valley, is now running to the full capacity.

The Los Angeles Pressed Brick Company is now making a faience tile in many colors, and has just secured the contract for supplying this product for the interior decoration of the Utah hotel building in Salt Lake City, Utah.

The Humbolt Clay Manufacturing Company, of Eureka, Cali., held a special meeting of the stockholders, at which it was decided to build a dryer at the brickyards near Ryan slough. The dryer will be built early next spring, and will cost between \$2,500 and \$5,000.

The brickyard of H. H. Peterson at Holtville, Cali., is having a very busy season at the present time, shipping to many points in the interior of the state and even beyond the state boundaries. Some new machinery has been installed, which brings the daily output up to 250,000 brick.

The Raton Brick Company's plant at Raton, N. Mex., is now running again after being idle for about a month on account of bad weather and a dull market. The railroads have promised lower rates, which will enable the company to expand the market for its output. The company now has four kilns in operation, with a daily capacity of 20,000 brick.

A number of business men of El Paso, Tex., including James Clifford, G. W. Emerson and a number of contractors of the city, have purchased 160 acres of land containing clay and brick shales in great deposits near El Paso, and will erect a plant on the property in the near future.

B. W. Rice, a representative of the United Securities Company, of San Francisco, has gone to Honolulu, Hawaiian Islands, to erect a brick plant in that city.

Plans for the expenditure of more than \$1,000,000 in enlarging the great refineries of the Standard Oil Company at Richmond, Cali., and doubling the capacity of the existing works have been inaugurated. In building, the Standard Oil Company uses common red brick as a rule, so this means that one of the San Francisco brick companies with kilns in Richmond will get a large contract in the near future.

The San Francisco Board of Education is planning the erection of a number of school buildings during the coming spring and summer months to the value of \$500,000. One three-story structure has already been planned, and will be built with pressed brick and terra cotta as soon as the rainy season is over.

SUNSET.



Written for THE CLAY-WORKER.

FEEDING AND PUGGING AND MANUFACTURE.

THIRD PAPER.

THE METHODS OF feeding pans, pug mills or other clay-preparing machinery in general use are crude and unsatisfactory, and lead to losses which should not occur.

Assume that we are feeding a wet pan for sewer pipe. We have often seen piece after piece of pipe thrown back because the clay was too soft. The pipe would collapse in handling. The pressman would call for stiffer clay and the whole crew would "rub it in" on the pugger. The result would be the opposite extreme and the pipe would come out cracked, because the clay was too dry.

In one instance we stood by when the press broke from this cause, which ended the work for the day. Some men are much better puggers than others and the shop is fortunate in having a good man. Much depends upon his judgment. He draws off a charge of clay from the bin and adds to this what water he thinks necessary. Subsequently, he adds more water or clay to correct the error in the first instance, which may be repeated. An automatic weighing device for the clay and a trap to deliver a fixed quantity of water would give results much closer and would avoid the extreme limits of soft and stiff pugs, which cause the greatest loss in ware and damage to machines.

In making stiff mud bricks uniform feeding is still more important.

On many yards the clay is pugged as it comes from the grinding machine, and only those who have tried to pug under such conditions know how irregular is the stream of clay.

At least there should be a bin of clay from which the pugger can draw his supply, but the most satisfactory arrangement would be an automatic feeding device. Think of it. All day long a steady stream of clay is running into the pug mill, gauged to the capacity of the machine, or of the take-offs or of the grinding machinery. How easy to regulate the water for such a stream and how uniform the pug.

The machine pushes out a bar of clay at a uniform speed and the take-offs are kept busy.

Now remove the automatic feed and go back to the original method of taking the clay direct from the grinding machinery. Regardless of the variation in the character of the pug, and the loss in consequence, there will be times when the take-offs will be unable to get off the fast coming bricks and many go over the end of the belt. During this period the bricks are not properly handled and hacked on the cars. In five minutes perhaps one man will be able to handle all the bricks that are coming out, while the others

in the crew will loaf. We believe that the value of uniform feeding will be recognized by everyone.

We would attach a counter or measuring device to the bar of clay. It will register what bricks the tally board should show, and the difference is due to the waste cut and loss.

A return conveyer should take the waste cut back to the machine. Simple as it is, we have visited many yards in which this was not used, and not only was extra labor required, but the waste, often being allowed to accumulate and become hard and dry, was thrown away, or, if fed back into the machine, caused greater loss than it was worth.

Returning to the subject of clay preparation, there is excellent opportunity for improvements in this work in this country.

We find it necessary to prepare the clay for sewer pipe in wet pans, and wet pans are also largely used in preparation of refractory clays.

The wet pan is intermittent in its action and when applied to brick machines which are continuous in their action the operation is not satisfactory.

In Germany perforated wet pans and perforated rolls have been introduced with beneficial results. The clay is ground in a dry pan or by rolls. It may even be pugged in an ordinary mill, then fed into the perforated machine which forces the wet clay through narrow slits in the perforated plates, thus giving a continuous stream of clay pugged to the best possible condition for manufacture into brick.

It is not our intention to discuss the various types of machines, cutters, etc., except in so far as the introduction of machines not in general use will lead to better preparation of the material or lower cost.

In this connection we frequently find use for a shredding machine. Many clays are quite soft and easily crushed by rolls, yet as they come from the clay pit there are many large lumps or masses of which the rolls will not take hold.

If these lumps are quite soft a combined feeder and disintegrator will handle them, but in numerous instances the lumps are too compact to be broken up in this way, and for such clays we need a toothed machine which will tear the clay into pieces small enough to enter the rolls without slipping.

Holes in Brick.

Holes through the bricks, where practical, have several advantages. They save some clay, prevent laminations, the bricks dry more quickly, they burn quicker and require less fuel, and, finally, not only is the shipping weight less, but the holes hold the mortar in which it clinches and makes a better and stronger wall.

We have confined the above discussion largely to stiff-mud bricks.

Scumming.

Economy as previously remarked consists in either making a cheaper brick or a better one. There are many clays that scum slightly, and the selling price of such bricks would

be profitably increased by treating the clay with barium carbonate to overcome the scum.

It must be remembered that the action of barium carbonate is very limited, and if a small quantity will not effect a cure a larger quantity will do no better. The best method of using it is to have a tank with a stirring arrangement. Fill this with water and add the barium. Use this water in the pug mill or wet pan. The trouble may be with the water used, and this treatment is a sure remedy in this instance.

Color.

We are frequently asked how the natural red color of the burned clay may be darkened. This is a problem which has not been solved. Powdered iron ore will give a red color, but it always gives a dull brownish red, and we can not imagine a situation where its use would be profitable as a body color. If it were practical to use the red pigment made by roasting iron sulphate the chances for a good color would be much better.

In sand mold bricks the dark color is successfully obtained by coloring the sand with iron pigment.

A better method it seems to us would be to drench the sand with a solution of iron sulphate, then dry it in the usual sand dryer.

This would coat and fill the pores of each grain of sand with a film of pigment which would burn a brilliant red color.

It has been suggested that the iron sulphate solution could similarly be used in the pug mill to color the entire mass of clay, but it remains to be seen whether the tendency of sulphates to cause scumming would not seriously interfere with this process.

Cutters.

An automatic cutter should be used in any stiff-mud plant unless the capacity is very small. Automatic cutters are now on the market which make a satisfactory cut and which are economical in operation. Wires can be put on while the machine is in operation, and the cut is a diagonal downward movement which insures a clean-cut face and one end. For wire-cut face brick it is important that the wires have this downward diagonal movement. The development of such machines has done much toward eliminating the repressed brick, and added to the beauty of building facing material.

A cutter has been designed but not yet fully developed to not only cut the bricks with the desired stroke, but also to space them and place them on pallets, which not only will avoid the loss that comes in handling the soft product, but permits the bricks to be handled in units of eight and thus reduces somewhat the take-off labor. Especially will such a cutter prove valuable in making the rough face effects which are now so popular on the market.

Conveying to the Dryer and Drying.

Up to the point where the bricks are actually formed the labor cost should be a small item. Two or three men in the clay pit operating a steam, two men hoisting the clay into the storage shed, one or two men feeding the grinding machinery, one man pugging, or two men if wet pans are used, and one man to look after the machine and cutter; in all, seven to ten men should easily make 50,000 bricks per day and perhaps double that output. We have seen situations where five men were making 50,000 bricks per day, including everything up to take-offs, except, of course, the power.

From the cutter the labor is considerably more. Four to five take-offs, four dryer men, three to four tossers, and the same number of setters for 50,000 bricks.

Fourteen to seventeen men to take the bricks from cut-off and place them in the kiln.

There are several attempts to reduce the cost of this part of the work, and in some situations and on some material systems have been devised and are in successful operation.

In one system applicable to soft-mud bricks a conveyer system takes the pallets of bricks direct to a steam rack

dryer. The conveyer eliminates the labor of conveying the pallets to the dryer, which is quite an item when open air drying is taken into account, which not only required off-bearers to cover a comparatively large area, but in most instances the bricks had to be edged up during the drying process.

The steam rack dryer with conveyer system reduces materially the labor of the older yard system, and shows some saving over a car and tunnel system in getting the bricks into the dryer.

In transporting the bricks from dryer to kiln the car system handles 300 to 500 brick units, which would offset the advantage of the conveyer system at the other end. In rapidity and completeness of drying the steam rack system will show some advantage over the car and tunnel system on soft-mud bricks, but is hardly adapted to stiff-mud. Both systems are modern, but the progressive waste heat tunnel, because of its safety, has much the wider application. There are many clays which can only be safely dried by first heating them up in a moist atmosphere, and the progressive tunnel approximates this condition.

Another system brings the dryer to the machine belt. It uses an endless chain with flights holding 50 to 100 bricks. The chain passes over sprockets, up and down a high, long, narrow building, into which hot air is forced.

The take-offs place the bricks on the flights and should handle more bricks than the same crew could place on cars, since the flights are always at the same level and the take-off does not move out of his tracks, nor stoop nor bother with racks or moving cars as he would have to do in placing the bricks on cars. Also no labor is required to get the bricks to the dryer. On the other hand, when the bricks are dry practically the same labor is required to get the bricks from the flights to trucks or cars as would be required in the initial take-off, and the loss here offsets the gain at the other end.

Another system handles the bricks in units of 100 or more on pallets by lifting trucks. The bricks are placed over tunnels in the dry house and when the tunnel is fully covered, hot air is forced through the tunnel and rises through the bricks. Canvas or burlap is placed over the bricks to prevent too rapid escape of the air.

This system has some merit for yards of small capacity where the clay is safe drying, and perhaps can be applied to somewhat tender clays by regulation of the hot air admitted to each tunnel.

For yards of small capacity the lifting truck or lifting car system eliminates considerable investment in equipment, and is quite as economical in operation as the car and track system.

It is not peculiar to the above system, but may be applied to open yards or dry floors of any type.

We have seen the lifting car system advantageously used in fireproofing which was placed on top of the tunnel dryer using a car and track system.

In one or two sewer pipe plants it is used in connection with a tunnel dryer, but we do not know whether it is considered satisfactory on the yard or not. At any rate, the idea has not been adopted in any recent modern plants. The objection would be that the ware could not be carefully watched, and the rolling, finishing and turning would not always be done when the pipe was in the best condition for the work. Another objection would be that the particular ware desired for the kilns as the setting progressed would not be at hand, and to get it would necessitate moving a lot of other sizes.

The use of the lifting car has been tried in connection with the ordinary dry floors.

The pipes were placed on racks at the press and taken therefrom by a lifting car and placed on stanchions on the floor.

When in proper condition they are rolled and finished on the racks, and when dry taken to the kiln without removing them from the racks until the kiln has been reached.

In this way two handlings were avoided, viz.: placing them one by one on the floor to dry, and taking them from the floor when dry and being loaded out for the kiln.

The system lacks elasticity for such a varied ware as

sewer pipe, but beyond this there would seem to be some economy in the system.

Whether economical or not, it can be said that it did not appeal to sewer pipe manufacturers and has not been adopted by them.

The system is exceptionally adaptable to fireproofing, hollow blocks and bricks.

(To be continued.)

THE TRENTON SCHOOL OF INDUSTRIAL ARTS.

A MAGNIFICENT NEW home has been started as the future headquarters of the School of Industrial Arts, at State and Willow streets, Trenton, N. J. It is the gift of Secretary of State Henry C. Kelsey, and will cost \$100,000. It will be five stories in height, containing 5,000 square feet of space on each floor, and is to be built of brick construction, in the Florentine renaissance design, by Cass

BRICK-PAVED COUNTRY ROADS FOR THE EMPIRE STATE.

BRICK IS TO be used extensively in the construction of good roads in Erie county next year. The New York State Highway Commission has recognized the necessity for a more durable road surface on several of the roads leading southerly from Buffalo, and have awarded contracts for about twelve miles of brick roads. It is interesting to know that the average cost per mile for these brick roads, which are constructed 14 feet in width, is \$17,200.

The County Engineer here has for the past five years recommended that all main highways improved with state aid within six miles of Buffalo should have a brick surface. The State Highway Commission has also awarded contracts for a brick road surface on the Buffalo-Aurora road, leading from an angle in the Orchard Park road to East Aurora, N. Y. The length of the brick pavement which has been contracted for is 4.43 miles, the contract price being \$68,000, or an



Pottery Modeled, Designed, Glazed and Fired by Students of the Trenton School of Industrial Arts.

Gilbert, of New York City. While other industrial education will have space, the ceramic instruction will take up one-fifth of the building. There are at present nineteen teachers and 375 students, under the directorship of Frank Forrest Frederick, who is now on a tour through Europe. It is a state institution and is practically free, a nominal charge of two and three dollars being charged the students. The new building will have room for training, casting, drawing, glazing, drying, burning, etc. F. G. Applegate teaches the modeling, glazing and firing of pottery. Frank G. Holmes and William H. Clayton teach designing, painting and firing. K. Elrod teaches ceramics, Edward Stover general chemistry.

The bust of Mr. Kelsey being made by H. C. Mueller will stand in the new building, which will have a suitable pedestal and mosaic tile background. The memorial room, in which will be kept the collections of Mr. Kelsey, will be kept open at all times.

The school grants six diplomas and has both afternoon and evening classes.

average of \$15,400 per mile. The commission is also preparing plans for the improvement of the road through Blasdell and for connecting a brick pavement in the village of Hamburg, N. Y., with the new county roads which lead from Hamburg to Springville, and from Hamburg to Gowanda, N. Y.

The road through Blasdell will be about 5,000 feet in length and 16 feet wide. The road on East Main street in the village of Hamburg will be 3,100 feet in length and 28 feet wide. The road on Pierce avenue in Hamburg will be 2,000 feet long and 30 feet wide. All of these roads will be constructed with brick surface. This shows that during the next year over thirteen miles of brick road will be constructed in Erie county, N. Y. The Lake Shore road from Eighteen-mile creek to the city of Lackawanna, a suburb of Buffalo, as a state road will also be improved. This will be the first road constructed in Erie county under the new law which provides for through routes which are constructed entirely at the expense of the state.

Written for THE CLAY-WORKER.

THE BENEFITS OF ORGANIZATION

An Object Lesson Which Ought to Appeal to Every Clayworker in the Land, and Lead to a Greater Appreciation of the N. B. M. A. and Auxiliary Organizations.

THE BENEFITS and advantages of organized effort has been quite obvious to the thinkers and educators of all nations almost from the very dawn of civilization. In religious and educational work, no less than in governmental affairs, it has always been an absolute necessity. But it is only of late years that the power of organization in industrial affairs seems to have been much appreciated. Now in every leading industry organized effort, concerted action, is supplementing individual effort with results that are far more beneficial than many who are direct beneficiaries fully realize.

In the brick business the work of the N. B. M. A. has not always been fully appreciated by the clayworkers of the country. Had it been, the membership would have been many times greater, and, in consequence, much more might have been accomplished. Instead of a membership of less than 700, there should be ten times that number actively interested in its achievements. Think what promotion work might have been accomplished if even one-fourth of the clayworkers of the land were banded together effectively for the common good of all. We may illustrate this in part by recounting a little of the history and accomplishments of the National Paving Brick Manufacturers' Association in the five years of its existence. In making this review, we aim to bring home to those engaged in other lines of clay work what may be realized by organized effort.

THE NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION—ITS AIMS AND ACCOMPLISHMENTS.

The organization of the National Paving Brick Manufacturers' Association, which occurred during the summer of 1905, marked an epoch in the paving brick manufacturing industry in this country. The purpose of the organization as originally declared was a wonderful conception of the needs of the industry, and whether by foresight, accident or intuition, these purposes have met the requirement of the manufacturers to the greatest degree. They are as follows:

First. The dissemination among its membership of technical knowledge relating to the manufacture of their product.

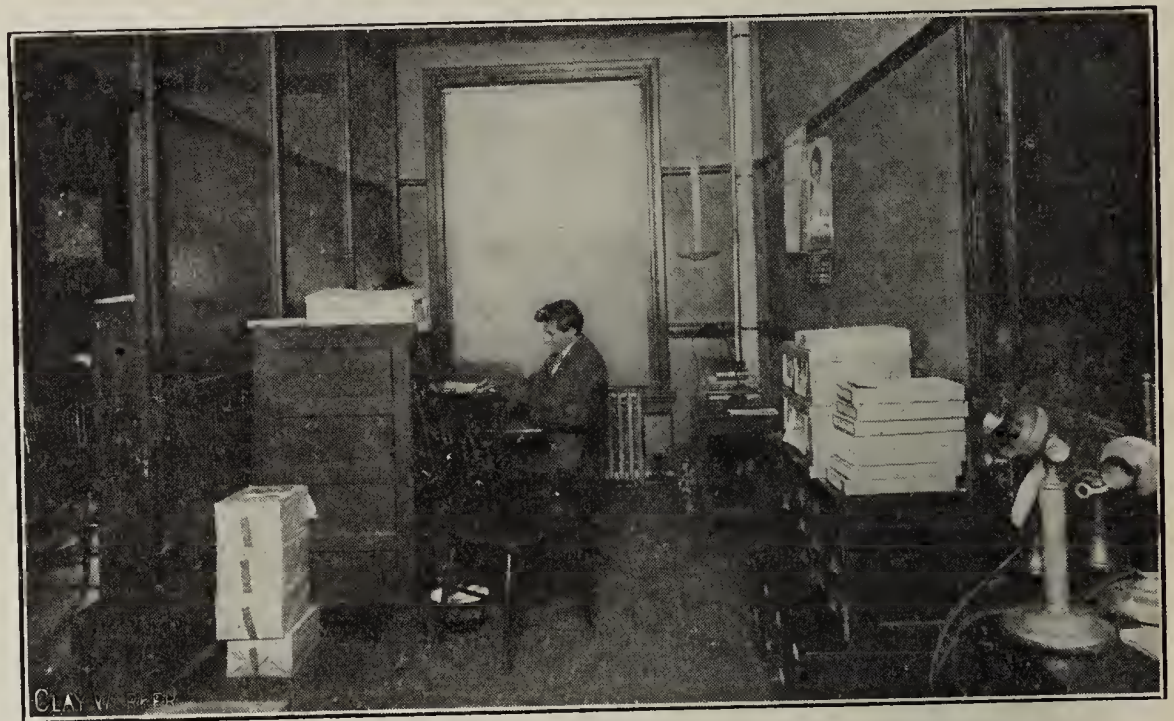
Second. To bring to the attention of the public the merits of vitrified brick as a paving material.

Third. To influence to the greatest

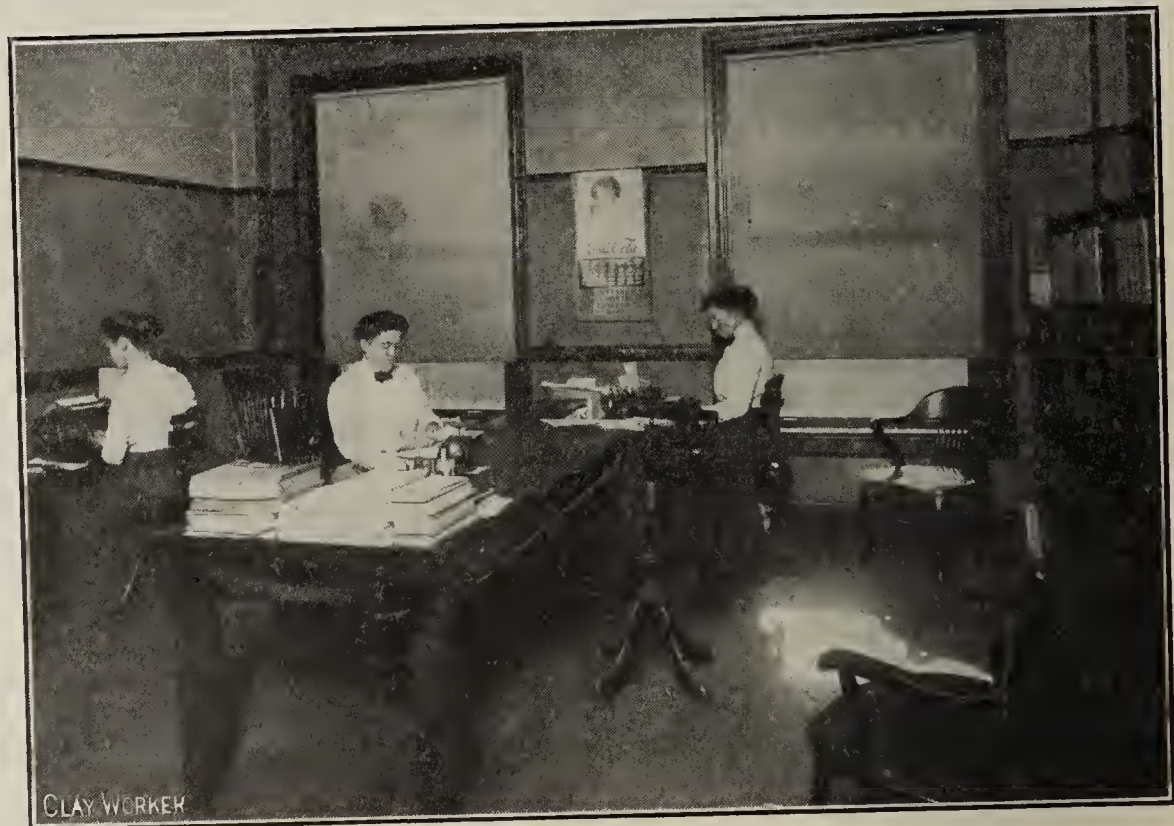
Offices of The National Paving



Secretary Blair at His Morning's Dictation.



M. W. Blair, Technician, Compiling Data on the Rattler Tests.

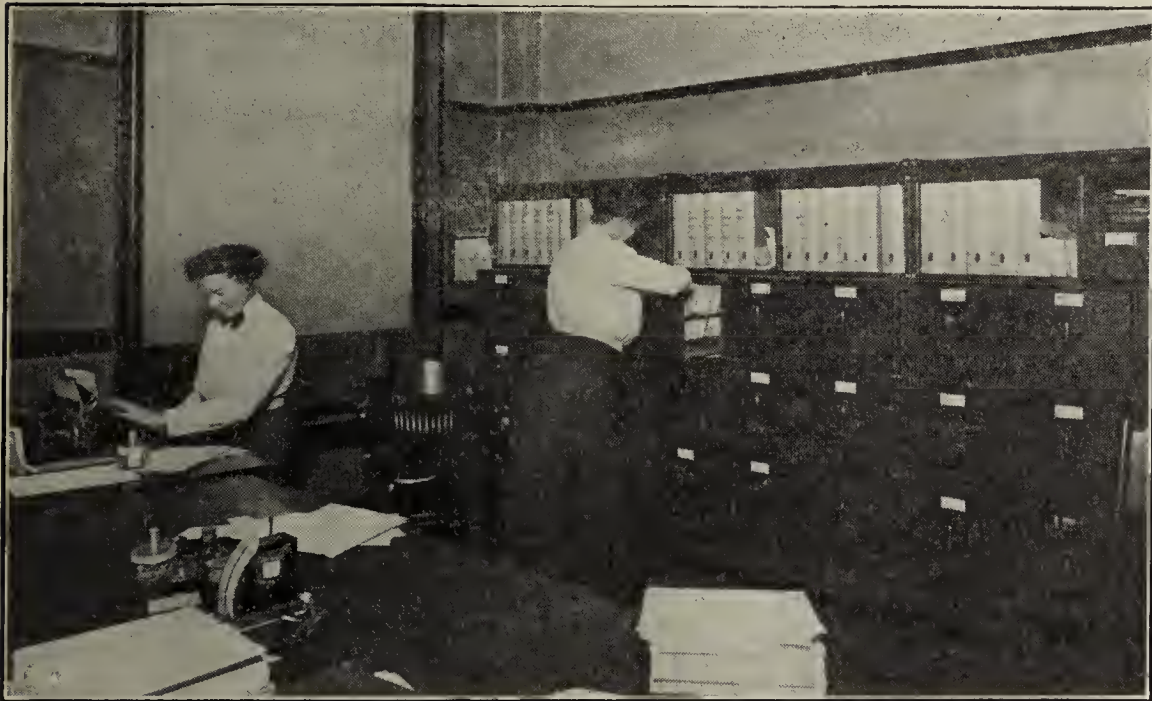


The Typewriters Are Kept Busy With the Daily Grind.

Brick Manufacturers' Association.



Mr. Middleton in His Private Office Considering a Special Paving Campaign.



Filing Department, Where Paving Information From Every City May be Found.



Chief Clerk Miss Foulston Directing the Circularizing Work.

possible extent the proper construction of brick streets.

Fourth. For furnishing truthful and reliable information regarding other paving material, and their comparative value as pavements when considered with brick pavements.

How well these purposes have been fulfilled the members themselves scarcely appreciate. It is only the outsider who has observed the force, influence and effect of this organization's work, who can see fully what has been accomplished.

No question but that the determination to produce a better brick has been influenced by the constant and unrestrained information so cheerfully disseminated between the members; certain it is that a better brick is being made.

But the work of the association in the second and third purposes, above stated, is where the efforts have been most effectively shown. It has proven a timely intervention in the use of paving brick, far exceeding any possible anticipation.

Up to the organization of the association, vitrified brick paving construction received no general directing force or attention. A single company was powerless to impose upon, or even advise the contractor, official or the public any particular or restrictive views as to how brick pavements should be built. As a consequence, for many years brick pavements were constructed in all sorts of ways, according to the whim of the contractor, who often followed crude methods, uninfluenced by experience. The result was a dissatisfied public. Brick pavements were going in not only regardless of their best possibilities, but with great carelessness, and generally with a stupid design and specification to misguide the unskilled workman.

Under such conditions the flood tide of the paving brick business was being dammed up—it could go no further unless hindrances were removed, and unless rehabilitated in the public favor. Under these conditions the industry must recede, if not cease altogether.

The one chief merit of vitrified brick recognized under these conditions was that of durability. Even if the pavements as constructed were rough, noisy and unsanitary, they had the recognized element of durability over that of any other paving material.

Confronted thus, it was apparent that the first thing to be done was to recommend a specification that was certain for the construction of brick pavements at their best. It must be one that would command the respect of the engineers, so they would accept the suggestions and prove its worth to the public by producing an entirely satisfactory pavement. Its position exactly right, it must be steadfastly maintained, intelligently defined and insistently urged. This was undertaken; the wisdom of such a course has now been fully demonstrated; not only have a large number of the most prominent engineers approved of the association's directions for the construction of brick streets, but

more than seventy colleges have endorsed them and instructed their engineering classes to use the directions as text therefor.

Property owners about to be assessed for paving are being advised as to the advantages of proper construction, and those officially charged with contracting for municipal work are fully advised as to the best manner and methods of securing the best value for the money expended.

The campaign of education, so absolutely necessary in the face of an era of false doctrines and heresies taught by so many paving fanatics, in utter disregard of truth, has been conducted by representatives in the field in connection and co-operation with the general office, which is the headquarters of the association.

What Taxpayers and City Officials Want to Know.

From the headquarters goes out a daily mail of from 400 to 500 pieces, responding to every conceivable call, embodying every phase of street improvement questions possible:

A letter from a property owner asking a single question.

An engineer wishing to know the association's reason for this or that specific direction.

Another asking for full and complete information, in order that he may revise his specifications.

Another property owner who wishes to conduct a campaign in favor of brick street improvement, and wishes all the association's literature.

A city requesting the expert service of a representative of the association, that they may be started right in their work.

A request for an inspector.

An engineer calling to discuss features of his work, or a request that someone be sent to him.

A delegation of property owners calling to discuss their wants.

A request for a conference.

A talk or lecture before this body or that.

An article for this magazine or that paper.

A request to furnish 500 voters with the association's literature, that they may be induced to vote in favor of issuing improvement bonds.

A mere sample of an everyday experience, all emphasizing a growing confidence on the part of the public in the association, which has been developed out of a determination of the association to stand for honesty, integrity and intelligence, regardless of any momentary advantage, such as is often sought for by sales agents to the sacrifice of his ultimate interest. This work of establishing in public favor and extending the use of vitrified brick by securing to the taxpayers satisfactory and durable streets, is being gradually accomplished.

Through the National Association of Paving Brick Manufacturers the public in many parts of the country are furnished with actual evidence of what is possible in brick street construction, and now, as a result of the association's publicity work, a great number of city officials believe in the great merits of vitrified brick streets properly constructed. In many instances the practical outcome of efforts thus directed is for the use of paving brick in large quantities, the responsibility for which is not even known to the membership of the association.

But the work of the association, like any other valuable work, is not finished, but, instead, is only just begun.

Two political conditions in our body politic make continued efforts absolutely necessary for self-preservation. The one wherein the greatest hindrance obtains is the difficulty of securing competent supervision in construction, that the work shall be skillfully done and the details of specifications strictly adhered to. The other is that the municipal officers change every two or four years and the work must begin anew, but, like the proverbial ball of snow, it grows steadily and carries greater weight and power as it passes on.

Points of Difference to be Reckoned With.

In considering this subject, it must be borne in mind that the success of the N. P. B. M. A. is due in part to the fact that a majority of those identified with the organization have taken an active interest in its affairs, and further, that this organization was possible because the paving brick industry

is limited to a comparatively few large units. This is just the reverse of the situation in the building brick industry. The latter is composed of an immense number of small units. In the one case, organization and control is a comparatively easy matter; in the other case, it is extremely difficult; nevertheless, it is possible and perhaps in the near future the pioneers in this work will see their aims and hopes realized in a larger measure than some have thought possible.

In the publicity work undertaken by the Clay Products Association, which, like the National Paving Brick Manufacturers' Association, is an auxiliary organization, and owes its origin to the N. B. M. A., there is hope of a compact, commercial organization which will do in part at least for the building brick trades what the N. P. B. M. A. has done for the paving brick industry. That our readers may realize that the results would be far more beneficial than is generally realized, we have recounted some of the accomplishments of the paving brick organization.

In this connection, it is only mete that a meed of credit should be given to the master spirit that has wrought this great work, Mr. Will P. Blair, the National Secretary. His success is due in a great measure to his unquenchable enthusiasm and his unfaltering faith in the superior merits of paving brick. It took just that character of faith, and a deal of good horse sense besides, to accomplish what he has done, but the results are well worth the effort and brains devoted to the work. To be sure, Mr. Blair is one in a thousand, still may it not be that the building brick fraternity may find their Moses who will lead them to success and profit greater than they have heretofore enjoyed. A Moses is needed and must be found if the building brick industry is to reach the goal that the merit of the product deserves.

A GOOD BEGINNING.

A good farmer said to us the other day, "I have been getting some dividends from my investments in tile drainage."

"How is that?" we replied.

"Four years ago some one handed me a paper on tile drainage. I read it. The article which attracted my attention most was one on thorough work in drainage, and what might be expected in the way of per cent. annually by investing money in drainage. I thought it over and over. I had at that time three or four hundred dollars that was not making anything and I could not readily loan it at a good interest, and young stock was hardly to be had at any reasonable price.

"Finally I concluded to underdrain a twenty-acre field near my house, and I thought I would do it right. To get a good outlet I had to dig an open drain down the road about 80 rods. Having reached the point where we wished to enter the field, we commenced laying the tile 3½ feet deep and run side drains. Well, there is no use in my telling all about how I did it, only that the drains would average about 4 rods apart and the work cost \$21 per acre. Well, I said to myself several times during the construction of the drains, 'Will it pay?' I finished up the work about the first of May, but I had the side of the field where we began first plowed before we finished the ditching, and we had the entire field ready for planting by the 10th of May.

"There was a great difference in the working of the land, compared with seasons past, the first year. When fall came I had fully sixty bushels of corn to the acre, and I don't think I ever had more than forty bushels before and the land had been easier to tend. I said, 'Here is the best crop I ever grew on this land. On an average it is \$10 better. Well, well, that does pretty well for drainage, but will it hold out?' Since then I have grown three more crops better and better. The money I put in the ground in drain tile has paid me more than 25 per cent. interest. This year I put in four miles of drain tile.

"Several of my neighbors are draining the low places with tile that are too small, but they think I put too many tile into my land, but while the money in tile continues to pay me so well, I shall keep on draining until I get all my land drained."

Is it not much better for farmers to invest their capital on their own land and get good paying dividends, and certain dividends, than in any outside stocks that can be named.

And where is the stock which can be had that will guarantee such large and sure dividends?

The farm is a machine; keep it in good order by the use of thorough underdrainage as the base of best soil conditions and thus secure large dividends. More tile drainage, better drainage, better crop production—keep it in mind for most satisfactory results.



BY J. PARKER B. FISKE, S. B.

MANY PEOPLE have the idea that brick can not be advantageously used in the construction of a modern sized country or village house, and that it is adapted only for factories or store houses on the one hand or for apartment houses, business blocks, or very expensive mansions on the other, the opinion being prevalent that a brick house must necessarily cost a great deal more than one of frame.

While it is true that a brick building is slightly more expensive than one of frame, the difference is far less than is generally realized, and the practical as well as the æsthetic advantages of brick so far outweigh the slight increase in initial cost as to make it the more appropriate and desirable material.

In discussing the comparative cost of different forms of construction it must be understood that no figures can be given which will apply with equal accuracy to all parts of the country, as the relative cost of different materials and different classes of skilled labor vary in different localities. Thus, the frame house, as to first cost, would make a much more favorable comparison with brick when built in Maine, near the lumbering centers and far-distant from the brick-yards, than it would when built in the great brickmaking state of Ohio, where the freight is high on lumber and little or nothing on brick.

In order to discuss this matter intelligently, therefore, a certain representative locality must be selected and from the comparative cost of different styles of construction in this locality, modifications can easily be deduced by the architect to suit other local conditions. With this idea in mind we have prepared the following figures, taking as a basis a frame house costing \$10,000, and built in New Jersey within twenty-five miles of New York City.

In preparing these figures we have had the advice and assistance of several New York architects of high standing and unquestioned authority, and several contractors who are familiar with country house construction.

Taking this house as planned entirely for wood and leaving the inside arrangement and finish untouched, we show approximately the comparative cost of varying the outside construction as follows:

- (A) \$10,000 Frame house.
- (B) 10,500 Stuccoed on expanded metal nailed to wood frame, lathed and plastered inside.
- (C) 10,750 Hollow terra cotta blocks for outside walls, stuccoed on the outside and plastered directly on the inside.
- (D) 11,000 Solid brick outside walls, plastered directly on the inside.

In the above list, the frame house is, of course, of the

smallest initial cost, but the prospective home builder who adopts it for this reason will find that it is the most expensive in the long run. It needs constant painting and repainting, entailing a large fixed expense. Even the best lumber obtainable today soon begins to give way or rot out in places. If not painted and repaired, the house soon becomes dingy and unsightly. It is the most difficult to heat. Cold in winter and hot in summer, it is the most uncomfortable of any house to live in, and it is liable to burn down at any time. While the cost of painting and repairs is merely nominal for the first year or two, it increases in rapid progression from year to year; failure to promptly meet these expenses will result in a correspondingly rapid depreciation in value either for sale or comfort. These expenses within five years will have amounted to as much or more than the difference in first cost between wood and brick, and if conditions compel a sale or desire dictates one, the first cost of the wooden house can rarely be obtained, while the brick house has been growing better and more beautiful each day and has, therefore, increased in value.

The stucco house seems to be having its day just at present and to be meeting with favorable consideration from some architects and owners, but we believe that a careful study of its characteristics will show that it has no advantage over a wooden house unless it be that of appearance when first constructed. The clean, light walls and comparatively low cost have made it appear attractive, we believe, without a full consideration of the ultimate results of its use, especially as it is a new type of construction and has not as yet been stamped as wholly good by the seal of time.

By stucco walls we mean those that are constructed with a metal base supported by wood and coated with a layer of cement mortar. When first completed such a building looks inviting with its light walls and its red roof, but time soon lays its disfiguring hand upon it, soils its once light surface to a dingy gray and irremediably streaks and blotches it with dirt; cracks develop because of the shrinking of the timbers supporting the metal base and its stucco surface; leaks appear here and there and ere long the stucco begins to drop off and can not be renewed without unsightly spots and an indication of early depreciation.

The surface of a stuccoed frame house suffers less in a dry than in a moist country, but some dampness is constantly being transmitted by the stucco to the metal lath and the rusting process of the latter is slowly but surely going on. In many instances the metal lath rusts and stains the stucco—in others it rusts away entirely and the stucco drops off. When this occurs patching is impractical, and the only remedy is to relath and restucco the entire surface.

The advocates of the stuccoed house often point with assurance to the permanency of the stuccoed buildings of Europe. They neglect to mention the fact that the only permanent stucco work of the Old World is that which was applied upon brick walls, and that much of even that construction has required patching from time to time. The recent American innovation, however, of putting a thin layer of porous stucco upon a frail metal fabric, which in turn is mounted on wood, is an entirely different matter. The inevitable shrinking of the timbers and the rigid character of the stucco supported thereon combine to make this construction about the most unmechanical and illogical that has ever been seriously considered.

Even when the added expense is incurred of using hollow clay blocks for the exterior walls and cementing on them, the same results are sure to occur sooner or later, as the expansion and contraction of the burned clay base differs from that of the cement, and it is only a question of time when cracking and peeling will result.

When we have sought an honest expression of opinion from practical builders of experience, as to the value of cement for exterior wall construction in good residential work, we have been met with the statement that this construction is too new to warrant a prediction as to its ultimate life or value. The chief argument in its favor at present seems to be that it is attractive, not much more expensive than wood, and saves the cost of repeated painting. No argument is made in favor of its being more comfortable to live in,

cheaper to maintain, or safer in case of fire. The undeniable fact remains that it is still in the experimental stage and may prove most expensive and disappointing to him who adopts it.

We come now to brick, the most durable, the most artistic, and, in the end, the least expensive material for the walls of first-class and permanent buildings. Brick meets every requirement. It is absolutely repair proof; there is no painting, no patching, no expense of any kind for generation after generation on a good brick wall. The walls are not combustible, as the bricks have been through a white heat for days in their process of manufacture. The item of insurance expense alone is so much less on a brick house that it much more than covers the interest charges on the difference in first cost. A brick wall makes a house cooler in summer and warmer in winter. It gives no chance for lodgment of vermin. It reduces heating bills, repair bills, and insurance bills.

We will not take much space here to discuss the folly of non-fireproof construction for the American home—it is too large a subject. The country is rapidly awakening to the almost criminal waste occasioned by the use of a construction whose only excuse is a slight saving in the initial cost. Statistics show that in the year 1907, which may be termed a "normal" year, actual buildings and property destroyed by fire were valued at \$215,000,000; that we spent about \$300,000,000 in the maintenance of fire departments and apparatus; that we paid out \$195,000,000 to the fire insurance companies, of which we received back only \$95,000,000; in other words, that the cost of fire, directly and indirectly, was over \$600,000,000. With all our phenomenal growth, our tremendous booms and vast amount of building construction, the most active year we have ever had netted us about \$615,000,000 worth of new buildings and alterations, so that with all our boasted progress, we produce buildings equal in money value to only a trifle more than the value of the property that we lose by fire. Furthermore, it is appalling when we consider that fire has cost us as many as 7,000 human lives in a single year.

Europe has long ago learned better. The cost of actual combustion and destruction of property in this country is equal to a tax of \$2.30 per capita per year; the average corresponding tax in Europe is a trifle less than 35 cents per capita. Truly, we have much to learn of the older countries, and a study of the reason for their superiority will lead the student directly to the fact that throughout Europe the almost universal building material is BRICK.

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Feldspar in Stoneware Bodies.—Stoneware bodies burn usually to a tight body at regular stoneware heat. There are, however, several clays found which could be used for stoneware manufacturing, but the bodies are too open at regular stoneware heat. Such clays can materially be improved by the addition of feldspar. In many potteries the custom has been established to mix the feldspar dry with the dry clay, especially in the manufacturing of tile bodies. This mixing has not proven to be very satisfactory, as the fluxing qualities of the feldspar are not fully given to the clay particles. A mixing in the wet state is much more satisfactory, and potteries using this method have a much closer body than the tile factories. The feldspatic stoneware bodies form the class between natural and artificial bodies, and the practice of using stoneware clays has been extended more and more. By a careful use of feldspar it is possible to make such stoneware bodies tight by cone 3 and sometimes still lower, while the fusing point of feldspar is between cone 8 and 10. If pure white burning clays are used in place of the stoneware clays, whiteware bodies are obtained which in texture resemble the porcelain bodies.—*Keramische Rundschau*, No. 36, 1909.

Written for THE CLAY-WORKER.

NEW CERAMICS BUILDING AT THE UNIVERSITY OF ILLINOIS.

ON NOVEMBER twenty-second ground was broken for a ceramics building at the University of Illinois.

Although the school has been in operation for four years, it has never had a home, but has been compelled to do its work in basement rooms of the natural history, law and chemistry buildings. These rooms, besides being poorly lighted and scattered over a space equal to two city blocks, were not large enough to afford reasonable accommodations for more than thirty students, and, consequently, those in charge of the work have made no effort to secure a larger attendance for the last two years. If the department had been properly housed the present enrollment could easily have been doubled.

In 1907, and again in 1909, an appropriation for a suitable building was asked of the legislature, but both requests were denied. However, as the appropriation of 1909 added \$10,000 to the maintenance fund, after consultation with the authorities of the university and the members of the advisory board of clayworkers, it seemed best to devote this sum to starting a building. The most feasible plan seemed to be to erect the rear part (kitchen, etc.) of the proposed building, as, in that case, but little money would have to be expended for architectural effect.

In pursuance of this idea, plans were prepared, the contract let, and work begun November twenty-second, as stated above.

The building as planned is a fire-resistant brick structure, two stories and basement, with stone trimmings and slate roof. It has a floor area of 6,500 square feet and will, for the present, be divided in part by temporary partitions into a machine room 18x29 feet, a rough grinding room 17x29 feet, a general laboratory 36x29 feet, a plaster room 18x20 feet, a pottery room 20x23 feet, a drafting room 18x29 feet, a library 18x23, a chemical laboratory for research work, two recitation rooms and two offices, besides toilet, store and locker rooms, and will be supplied with water, gas, electric currents of high and low voltage, high pressure steam, compressed air and vacuum. In addition to this, the kiln house, which is adjacent to this building, has two large coke-fired kilns, one oil kiln and two high temperature gas kilns.

It would have been impossible to erect so large a structure and one so well adapted to its uses for the sum named had not the university authorities dealt generously by the department in assigning a favorable location where cost of construction will be reasonably low, and in supplying many small items which aggregate a considerable sum without cost to the department.

This building will afford reasonable accommodation for forty to fifty students, and the various rooms will be supplied with the apparatus necessary for effective work in all lines now covered by the school.

It is expected that this building will be ready for occupancy early in the second semester, and its completion will mark the beginning of a new era in ceramic education in Illinois. The next legislature will probably be asked for a sum sufficient to complete the proposed structure, of which the present building forms only the rear portion. The completion of the entire building will enable the department to add lines of work which it has not been able to touch thus far, and these additions will make it the broadest and best equipped institution of its kind in the United States. The return of Prof. A. V. Bleining, who is under appointment to take up the work July 1st next, assures the high quality of everything undertaken by the department.

We look forward with confidence to the time when the department of ceramics at the university shall prove as helpful to the clayworkers of Illinois as the college of agriculture has proved to its farming interests.

Written for THE CLAY-WORKER.

THE NORSE ROOM OF THE FORT PITT HOTEL.

A TRIUMPH IN DECORATIVE ART.

HERE ARE MANY good things awaiting those who attend the twenty-fourth annual convention of the N. B. M. A. at Pittsburg. The Fort Pitt Hotel itself is no mean attraction. It is a great brick structure, time-proof and fire-proof in all its principal parts. Plain and substantial in exterior appearance, its interior finish and appointments are rich and luxurious. The banquet hall is simply magnificent, but the feature of this great hostelry that will appeal most to clayworkers is the "Norse Room," or gentlemen's grille room,

he done nothing else than this he would deserve a niche in the artists' hall of fame.

Aside from the brilliancy of idea and appropriateness of design which Mr. Wareham has seized upon to make the room suitable to its purpose, he has brought into wonderful play the vast resources of the Rookwood Pottery—its superb palette of color and its rich glaze textures, to create an ensemble startling in its warmth and subdued richness.

Nothing more beautiful in tiling has been seen than the superb ceiling, richly ornamented with its innumerable interlacing designs, which apparently have been carefully studied from Norwegian carvings and runic inscriptions.

The quaint spirit of the old Norwegian Sagas has been well maintained in the wall panels or murals—the wild life of the Corsairs, the flight of the cormorants, the stretches of storm-



A Glimpse of the Norse Room, Where Delegates May Enjoy Their Lunches, and Indulge in Button-Hole Talks, Ad Lib.

so christened because of its chief decorative features. Its mural decorations depict the life of the heroic Norsemen, who, in their time, braved the dangers of the open sea and fought their fierce battles in tiny boats that nowadays would scarce be considered safe river craft.

The Norse Room represents a very high type of art, and every inch of it is executed in burned clay. The floor tile, the columns, the arches and ceilings, the beautiful murals, are all in tile and faience from the kilns of the Rookwood Pottery Company, Cincinnati. The chief decorative features are a series of nine panels illustrating Longfellow's poem, "The Skeleton in Armor." These beautiful pictures and all of the decorative features were designed by John Dee Wareham, and had

tossed waters, faint streakings of northern lights, the calm on Northern Fjords, over which sails the spirit boat of the Viking warriors to Walhalla, all tend to produce an atmosphere of unique charm.

For the visitor these panels form perspectives which give the impression of vastness to the room.

To one familiar with the difficulties of producing delicate color and tone in this material, it is difficult to realize a greater triumph in tile-making than is reached in this room. Nothing of its magnitude and excellence has heretofore been achieved.

The accompanying illustrations, especially the replica in colors of one of these panels, will give the reader an idea of the masterly manner in which the artist has portrayed the

rugged life and daring adventures of the doughty Norsemen. This beautiful room in enduring tiles, which will never fade nor dim with time, marks an epoch in decorative art in America.

That our readers may better appreciate the beautiful pictures and their meaning, we repeat the major part of Longfellow's great poem, "The Skeleton in Armor."



"Mid-ships with iron keel, struck we her ribs of steel,
Down her black hulk did reel, through the black water!"

THE SKELETON IN ARMOR

"Speak! speak! thou fearful guest!
Who with thy hollow breast
Still in rude armor drest,
Comest to daunt me!
Wrapt not in Eastern balms,
But with thy fleshless palms
Stretched as if asking alms,
Why doest thou haunt me."

Then from those cavernous eyes
Pale flashes seemed to rise,
As when the Northern skies
Gleam in December;
And like the waters flow
Under December's snow
Came a dull voice of woe
From the heart's chamber.

"I was a Viking old!
My deeds, tho manifold,
No Skald in Song has told,
No Saga taught thee!
Take heed, that in thy verse
Thou dost the tale rehearse,
Else dread a dead man's curse;
For this I sought thee.

"Far in the northern land
By the wild Baltic strand
I with my childish hand,
Tamed the gerfalcon;
And with my skates fast-bound,
Skimmed the half-frozen Sound
That the poor whimpering hound
Trembled to walk on.

"Oft to his frozen lair
Tracked I the grisly bear,
While from my path the hare
Fled like a shadow;
Oft through the forest dark
Followed the were-wolf's bark,
Until the soaring lark
Sang from the meadow.



"But when I older grew, joining a corsair's crew,
O'er the dark sea I flew, with the marauders."



"As with his wings aslant, sails the fierce cormorant."
 Faience Panel, Norse Room, Fort Pitt Hotel,
 Executed by Rookwood Pottery Co.

"But when I older grew,
Joining a corsalrs crew,
O'er the dark sea I flew
With the marauders,
Wild was the life we led,
Many the souls that sped,
Many the hearts that bled,
By our stern orders.

"Many a wassail-bout,
Wore the long winter out;
Often our midnight shout
Set the cocks crowing,
As we the Berserk's tale
Measured in cups of ale,
Draining the oaken pail,
Fill'd to o'er flowing.

"Once as I told in glee
Tales of the stormy sea,
Soft eyes did gaze on me,
Burning yet tender;
And as the white stars shine
On the dark Norway pine,
On that dark heart of mine
Fell their soft splendor.

"I wooed the blue-eyed maid,
Yielding, yet half afraid,
And in the forest's shade
Our vows were plighted.
Under its loosened vest
Fluttered her little breast,
Like birds within their nest
By the hawk frightened.

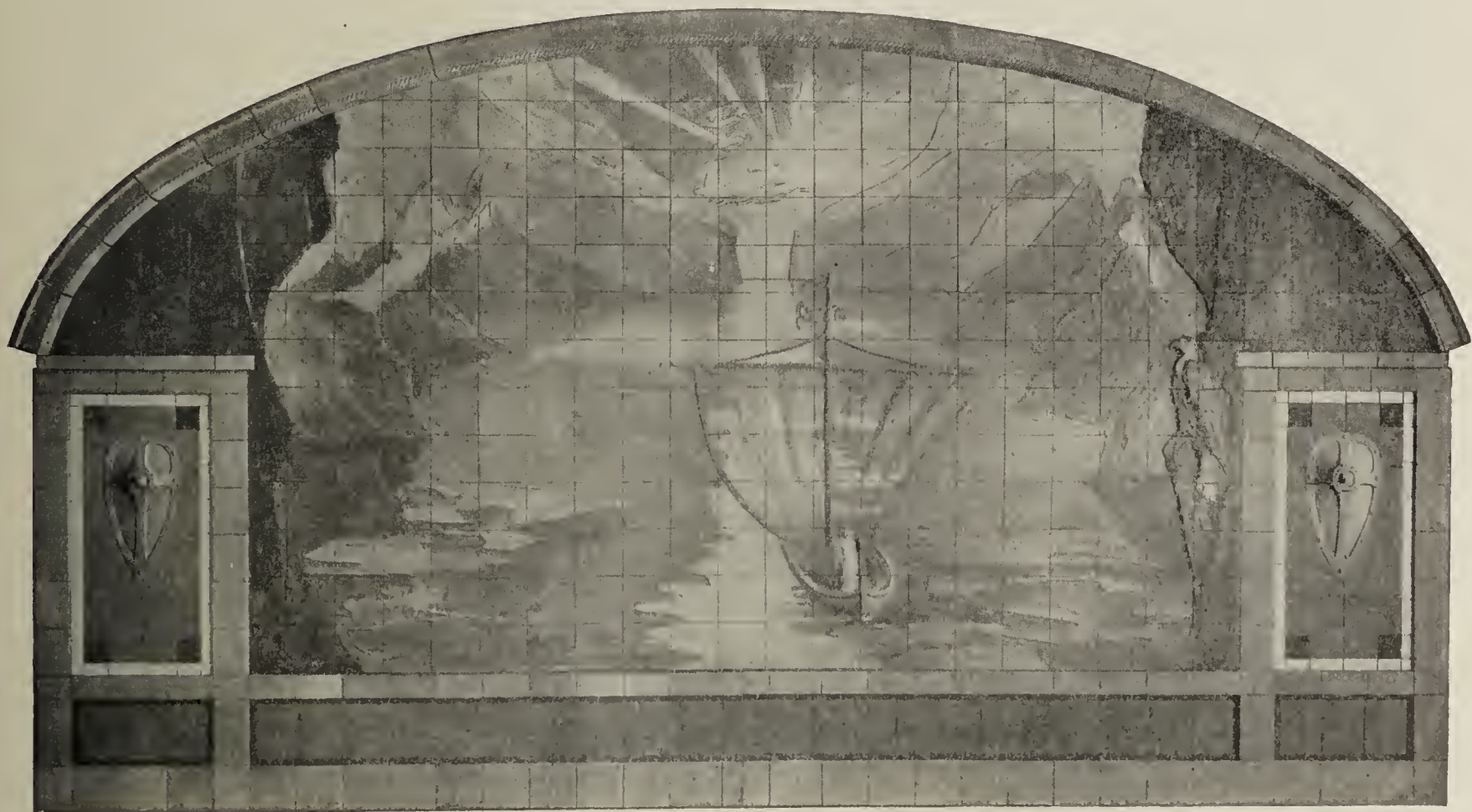
"Bright in her father's hall
Shields gleamed upon the wall,
Loud sang the minstrels all,
Chanting his glory;
When of old Hildebrand
I asked his daughter's hand,
Mute did the minstrels stand
To hear my story.

"While the brown ale we quaffed,
Loud then the champion laughed
And as the wind-gusts waft
The sea foam brightly,
So the loud laugh of scorn,
Out of those lips unshorn
From the deep drinking-horn,
Blew the foam lightly."

"She was a Prince's child,
I but a Viking wlld,
And tho she blushed and smiled,
I was discarded!
Should not the dove so white
Follow the sea-mews flight,
Why did they leave that night
Her nest unguarded?"



"There for my lady's bower, built I the lofty tower,
Which to this very hour, stands looking seaward "



"Thus seam'd with many scars, bursting their prison bars,
Deep drinks the warrior's soul, Skoal! to the Northland! Skoal!"



"Should not the dove so white, follow the sea-mew's flight,
Why did they leave that night her nest unguarded?"

"Scarce had I put to sea,
Bearing the maid with me
Fairest of all was she
Among the Norsemen!
When on the white sea strand,
Waving his armed hand,
Saw we old Hildebrand,
with twenty horsemen."

"Then launch'd they to the blast,
Bent like a reed each mast,
Yet we were gaining fast,
When the wind failed us!
And with a sudden flaw
Came round the gusty skaw,
So that our foe we saw
Laugh as he hail'd us."

"And as to catch the gale
Round veer'd the flapping sail,
Death! was the helmsman hail,
Death without quarter!
Midships with iron keel,
Struck we her ribs of steel;
Down her black hulk did reel
Through the black water!"

"As with his wings aslant,
Sails the fierce cormorant,
Seeking some rocky haunt
With his prey laden,
So toward the open main,
Beating to sea again
Through the wild hurricane,
Bore I the maiden."

"Three weeks we westward bore,
And when the storm was o'er,
Cloud-like we saw the shore,
Stretching to leeward;
There for my lady's bower
Built I the lofty tower,
Which, to this very hour,
Stands looking seaward."

"There lived we many years,
Time dried the maiden's tears;
She had forgot her fears—
She was a mother;

Death closed her mild blue eyes;
Under that tower she lies,
Ne'er shall the sun arise
On such another."

"Still grew my bosom then;
Still as the stagnant fen!
Hateful to me were men,
The sunlight hateful!
In the vast forest here,
Clad in my warlike gear,
Fell I upon my spear,
O, death was grateful!"

"Thus seam'd with many scars,
Bursting these prison bars,
Up to its native stars
My soul ascended!
There from the flowing bowl
Deep drinks the warrior's soul,
Skoal! to the Northland! Skoal!"
Thus the tale ended.

—HENRY WADSWORTH LONGFELLOW.

PLAN TO ORGANIZE FACE BRICK MANUFACTURERS.

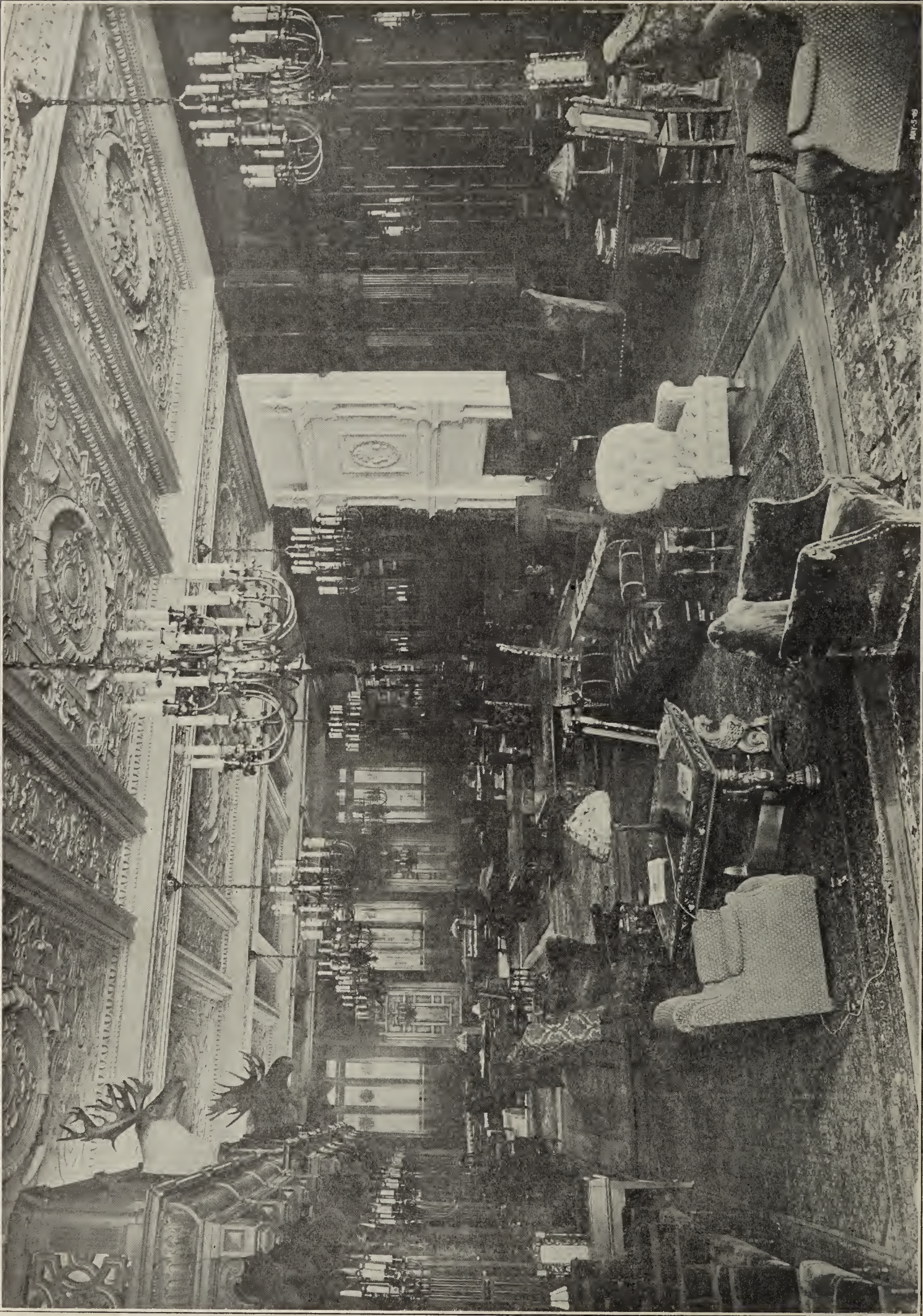
At a former National Convention the face brick manufacturers of Ohio organized a State Association, electing R. L. Queisser, of Cleveland, Ohio, Secretary. Being a firm believer in associational effort, Mr. Queisser now proposes the formation of a National Association of Face Brick Manufacturers, and has issued a call for a meeting at the Fort Pitt Hotel, Wednesday morning, February 9. The object of the organization is "To promote the welfare of the business in every legitimate way," and it is hoped that a permanent organization may be established as an auxiliary to the N. B. M. A., to meet annually at the same time and place as the latter association, just as does the American Ceramic Society, the National Paving Brick Manufacturers' Association, etc. Face brick manufacturers who are prevented from attending the meeting are requested to correspond with Mr. Queisser.



"Bright in her fathers's hall, shields gleamed upon the wall,
Loud sang the minstrels all, chanting his glory."



FORT PITT HOTEL, N. B. M. A. HEADQUARTERS, FEBRUARY 7 TO 12. PENN AVENUE, TENTH AND ELEVENTH STREETS, PITTSBURG.



The "English Room" of the Fort Pitt Hotel Which Will be Used as Convention and Banquet Hall During the Twenty-Fourth Annual N. B. M. A. Convention, February 7 to 12.



OFFICIAL ANNOUNCEMENT.

**TWENTY-FOURTH ANNUAL CONVENTION TO BE HELD
AT PITTSBURG, PA., FEBRUARY 7 TO 12, 1910.**

American Ceramic Society and National Paving Brick Manufacturers'
Association Hold Separate Sessions February 1 and 2.

THE TWENTY-FOURTH Annual Convention of the National Brick Manufacturers' Association will be held at Pittsburg, Pa., February 7 to 12, 1910. The largest attendance in the history of the Association is anticipated. The advantages of Pittsburg as a convention city are many. Geographically, it is neither north nor south, east nor west, but is, so to speak, the hub from which radiate the great trunk lines, affording quick and comfortable transportation from every section of the country. Scarcely any city can be reached so quickly and so conveniently by a large majority of our members. As the coming season promises to be a very busy one, it is expected that the representative clay-workers from all sections and especially those who are figuring on adding new equipment and enlarging the capacity of their plants, will take advantage of the opportunity to swap trade experiences. Those who do so will undoubtedly profit thereby.

Fort Pitt Hotel Headquarters.

Never have members of the N. B. M. A. been afforded more luxurious accommodations than they will find at the Fort Pitt hotel. It is one of the largest and finest equipped hostelrys in the world. It is a great brick structure, fire-proof and elegant in all its appointments, and provides every facility in the way of convention and banquet halls, committee rooms, etc. It is but two blocks from the Union Station, and may be reached by trolley car from the other railway stations. It is conducted wholly upon the European plan, and the following rates have been agreed upon:

Single rooms	\$1.50 per day and up
Double rooms	2.00 per day and up
Single rooms and bath....	2.50 per day and up
Double rooms and bath..	3.50 per day and up

While the Fort Pitt is an immense big hotel, it is very popular with the traveling public, owing to the exceptional service and the sumptuous furnishings and fixtures of the dining rooms and cafe. Hence, to secure satisfactory accommodations, members should at once notify the manager of Hotel Fort Pitt of the date of their intended arrival, character of accommodations desired, and the number in the party, etc., etc.

The Beautiful Norse Room and Cafe.

One feature of the Fort Pitt of peculiar interest to clay-workers is the gentlemen's cafe, which they have christened the Norse room because of the style of decorations. Connoisseurs declare this to be the most beautifully decorated cafe in the country. The floor, walls and ceilings are all of Rookwood tiles and faience. The mural decorations are exceptionally artistic. Here the members may enjoy their lunches and button-hole talks and at the same time feast their eyes on beautiful pictures, artistically grouped and com-

posed wholly of indestructible tiles, the coloring of which is a revelation to all lovers of art.

Displays of Sample Clay Ware, Etc.

Ample facilities will be afforded for the display of specimen brick, tiles, terra cotta, trade literature, etc. Those desiring to avail themselves of this opportunity are requested to make shipment in their own name, care Fort Pitt hotel. The committee of the National Clay Machinery Association having that matter in charge decided to make no exhibits of machinery at this convention. Hence, any exhibits of that sort must be made in private rooms, or outside the hotel. The Phipps Power building, Duquesne Way and Sixth street, offers space for such exhibits, and those desiring information in regard to same are requested to correspond with Mr. H. W. Watkins, manager of the Henry Phipps properties, Fulton building, Pittsburg.

Reduced Railroad Rates.

As in former years, the Trunk Line Association has granted a three-fifths rate on the certificate plan on all points in its territory, which embraces the states of New York, Pennsylvania, New Jersey, Delaware, Maryland, West Virginia, and the District of Columbia. The New England Passenger Association, having jurisdiction over all New England States, has concurred, thus affording a low round trip rate to Pittsburg from the east.

To obtain the reduced rate, delegates and those accompanying them must pay full fare for the going trip, and take a proper certificate for same from the ticket agent. This certificate, when properly vised, will entitle the purchaser to a return ticket at three-fifths the fare paid, making a four-fifths rate for the round trip. Those starting from small towns should make inquiry of local ticket agent a few days in advance to insure the receipt of proper certificate. If certificates are not taken, the reduced rates can not be secured. As it takes some little time to make out the certificates, delegates should present themselves at the ticket office at least thirty minutes before the departure of trains. If through tickets can not be procured at the starting point, local tickets should be purchased to the nearest point where such through ticket can be obtained, and there purchase through to Pittsburg, and a certificate from the ticket agent at the place where each purchase is made should be requested. The latter feature is imperative. No refund of fare can be expected because of failure of delegates to obtain certificates. Should any ticket agent be unable to furnish a certificate on the regular printed form, delegates should take a written receipt, setting forth the fact that certificate was asked for and could not be furnished, and stating the amount of fare paid, the name of the station where purchased, and the names of the railroads over which purchaser is ticketed. Such receipt, bearing the agent's official stamp, will enable delegates to obtain a proper refund. Return tickets will be good until midnight of Wednesday, the 16th. Tickets good going from February 3d to 9th.

Owing to the fact that 2-cent rates now prevail in most states west and south of Pittsburg, the passenger associations having control in the latter territories have declined to make any concession. Hence, members from the west and south may either use their local mileage or purchase round trip tickets where the latter are offered. The mileage book affords the advantage of a variable route, which oftentimes is quite important to those wishing to visit and inspect plants enroute, either going or coming.

Convention Sessions.

As in former years, the week will be divided by the National Association and affiliated bodies as follows: The sessions of the N. B. M. A. will be held in the convention hall in the Fort Pitt hotel, beginning Wednesday, February 9th, at 2 p. m., and continuing Thursday and Friday.

The American Ceramic Society will have headquarters at

the Seventh Avenue hotel, a block and one-half from the Fort Pitt. Their first public session will be held Monday, February the 7th, at 10 a. m. A complete program of their sessions, which will continue through Tuesday and terminate Wednesday noon, may be had on written request to the Secretary, Prof. Edward Orton, Columbus, Ohio.

The National Paving Brick Manufacturers' Association will meet in the assembly hall at the Fort Pitt hotel, Monday, February 7th, at 10 a. m. A program of their sessions may be had on application to Will P. Blair, Board of Trade Building, Indianapolis.

The National Clay Machinery Association will meet in Parlors A and B, Fort Pitt hotel, Tuesday, February 8, 10 a. m. Those desiring information in regard to same should correspond with the Secretary, W. N. Durbin, Anderson, Ind.

The Clay Products Association of America will hold its second annual meeting in the parlor of the Fort Pitt hotel, Tuesday, February 8th, at 2:30 p. m. For further particulars, write J. Parker B. Fiske, Secretary, Flatiron building, New York City.

Souvenir Badge and Number Button.

An appropriate souvenir badge and number button will be presented to each delegate and visitor with the compliments of the Pittsburgh Clayworkers' Association. These will be distributed by the Secretary of the N. B. M. A., whose headquarters will be in Parlor 138, where visitors are requested to call and register upon arrival, and where railroad certificates will be vised.

Visit of Inspection to the Testing Station, U. S. Geological Survey.

Tuesday, 1 to 3 p. m., a visit will be made to the clay products laboratories of the technologic branch, U. S. Geological Survey, at the old government arsenal grounds, located between Thirty-ninth and Fortieth streets, on the Butler street trolley line, where Professor Bleininger, expert in charge, and his assistants will exhibit their appliances for testing the crushing strength of brick and other structural materials, etc., etc.

The Annual Banquet.

The Associational dinner will be served Thursday evening at 8 p. m., in the banquet hall of Fort Pitt hotel. It will be a subscription banquet, under the direction of the N. B. M. A. Executive Committee. Dr. J. A. Brashear, one of Pittsburgh's most noted citizens and an author and scientist of international reputation, will be toastmaster. The other toasters selected insure a function most brilliant in oratory and 'twill be most sumptuous in setting. The ladies will grace the occasion, as usual, and full evening dress will be in order, though not by any means necessary.

There will be other entertainment provided for the visitors, including a theater party, sight-seeing trips, etc., for the ladies, under the guidance of the local committee.

N. B. M. A. PROGRAM.

First Session—Wednesday, February 9, 1910, 2 p. m.

Prayer by Rev. S. B. McCormick, Pittsburgh, Pa.

Welcome to Pittsburgh by his honor, Mayor Wm. A. Magee.

Response by Herman L. Matz, Chicago, Ill.

President's Annual Address, Lemon Parker, St. Louis, Mo.

Report of Treasurer, John W. Sibley, Birmingham, Ala.

Election and Installation of officers and members of standing committees.

Report of Committee on Technical Investigation, Ross C. Purdy, Secretary, Columbus, Ohio.

Rules of Procedure.

All formal resolutions shall be presented in writing.

At the close of each essay or address, an opportunity will be afforded for the full discussion of the subject under consideration.

No papers or essays not included in the regular program will be heard unless previously submitted to and approved by the Executive Committee.

Wednesday Evening, 7:30.

"Recent Architecture in Pittsburgh" (illustrated by stereopticon views), Prof. Henry McGoodwin and Henry Hornbostel, of the Carnegie Institute, Pittsburgh, Pa.

To be followed by an informal reception and social session under the auspices of the Pittsburgh Clayworkers' Association.

The following papers will be presented at the various sessions, together with questions for general discussion which may be submitted by those interested in particular features of the business:

Program Papers.

"The Lure of the Clay Bank"....D. V. Purington, Chicago, Ill.

Discussion led by_____

"Artistic Qualities of Burned Clay Products".....

H. C. Mueller, Trenton, N. J.

Discussion led by_____

"A Trip Through a Modern Pottery—Its Construction, Operation and Products"....H. E. Ashley, Pittsburgh, Pa.
(Illustrated by stereopticon views.)

Discussion led by_____

"Some Critical Observations of the Brick Industry,".....

A. V. Bleininger, Pittsburgh, Pa.

Discussion led by_____

"Brickmaking in Holland—Past and Present".....

Fritz Koch, St. Paul, Minn.

Discussion led by_____

"Ideals Plus Horse Sense in Publicity Work".....

Robert Frothingham, New York, N. Y.

Discussion led by_____

"Brick Paved Highways"....A. B. Lea, C. E., Cleveland, Ohio

Discussion led by_____

"Are Brick Plants Discriminated Against by Fire Insurance Companies? If so, What is the Remedy?".....

T. C. Lundy, Knoxville, Tenn.

Discussion led by_____

"Practice Vs. Theory in Freight Transportation".....

John F. Lent, Pittsburgh, Pa.

Discussion led by_____

"Some Observations on the Clay Column from a Stiff-Mud Machine".....Paul E. Dummmler, Charleston, W. Va.

Discussion led by_____

"Producer Gas as a Fuel for Burning Clay Ware".....

George C. F. Vater, Dayton, Ohio

Discussion led by_____

"The Significance to Brickmakers of the Revolution Now Taking Place in Domestic Architecture in America"...

Donn Barber, New York, N. Y.

Discussion led by Will P. Blair, Indianapolis, Ind.

"The Small Brick Plant and Its Relative Economy as Compared to the Large Plant".....

W. D. Richardson, Columbus, Ohio

Discussion led by_____

"Advantages of Artificial Draft as Compared With Natural Draft in Drying and Burning Brick".....

Ferdinand Vogt, Milwaukee, Wis.

Discussion led by_____

"Utility and Economy of Open-Top Kilns as Compared With Down-Draft Kilns".....Anton Vogt, Ada, Okla.

Discussion led by_____

"Modern Brickyard Equipment".....

Jos. L. Cite, Fishkill-on-Hudson, N. Y.

(Illustrated by stereopticon views.)

Discussion led by_____

QUESTIONS FOR GENERAL DISCUSSION.

What is Going to be the Effect on the Face Brick Business of the Growing Demand for Rough-Surface Brick?

What is the Most Practical Method of Moving Cars Through the Progressive Tunnel Dryer?

What is the Maximum Practical Length of Tunnels of a Progressive Dryer, a Blower Being Used to Supply the Hot Air and an Exhauster for Removing the Moist Air?

What is the Most Practical Method, Under Given Condi-

tions, of Removing Condensations from Steam Drying Plants and Returning the Hot Water to Boilers?

What are the Advantages of Metal Over Plaster Molds for Roofing Tile Presses?

Why Do Shale Brick Cost More Than Clay Brick?

What is the Most Practical Method of Grinding or Pulverizing Shale?

What is the Relative Value of Wood and Coal for Burning Brick?

What Type of Kiln is Best Adapted to Small Yards?

Is it Feasible to Burn Brick Which Swell in Burning in a Continuous Kiln on a Yard of 100,000 Daily Capacity?

Can Common Up-Draft Kilns be Fired With Producer Gas?

What are the Advantages of Artificial Drying Over Open Air Drying, Economy of Fuel Considered?

What is the Future of the Hand Yard?

Is There a Simple Way of Ascertaining the Amount of Heat to be Obtained from Various Grades of Coal? Is Wet Coal More Economical to Use Than Dry? If Coal is Stored any Length of Time, Does it Lose its Heat Units?

Should Fires be Kept Thin or Heavy on Grate Bars?

What is the Best and Cheapest Method of Eliminating White-Wash from Dry Press Brick?

Why Do Plastic Red Clays Check or Crack in Burning? What is the Remedy?

Can Tender Clays be Dried Successfully With Waste Heat?

Is Co-operation Among Brickmakers, With a View of Creating Better Prices, Practical? Does Cutting Prices Increase Volume of Business?

Why is the Price of Brick on the Decline, While the Price of Lumber is Rising? What Can be Done to Remedy it?

Can Face Brick be Burned as Successfully and as Cheap in a Direct-Fired Continuous Kiln as in a Gas-Fired Continuous Kiln?

What is the Best Artificial Coloring for Light Burning Clay for Stiff-Mud Brick?

Is it Practical to Dry Brick With Waste Heat from Burning Kilns, With Inlet and Outlet Through Tunnels?

All sessions of the National Convention are open to the public. Those who are interested directly or indirectly in clay work of any character are invited to join the Association and attend the convention. Members and their families or friends who may accompany them will be entitled to reduced railroad and hotel rates, and may participate in all the entertainments. Those desiring further information as to requisite of membership, etc., are requested to communicate with the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

LEMON PARKER, President.

THEO. A. RANDALL, Secretary.

WHAT SHOULD BE OUR ATTITUDE TOWARD TRADE SCHOOLS?

The attitude of brick manufacturers toward trade schools should by right take on the form of a material as well as moral support. The clay industry has suffered more or less from both excessive prices charged for bricklaying and from arbitrary methods on the part of union bricklayers, and along with other industries, the trade school is helping bring relief to the clay business by furnishing young men with proper training to start them into business, to increase the supply of skilled workmen, and to limit the power and domination of union leaders. They already have the moral support of clay manufacturers as a rule, but we should go further than giving them a friendly pat on the back. We should send boys to them when opportunity offers and talk them up to contractors and to others who have young men of their own or young men connected with them that may be benefitted

by a proper training at some skilled trade. Every man individually can do a lot of good by this kind of effort, and then different associations may lend practical support by taking scholarships and now and then assisting some young deserving young men to get through one of these trade schools. Either help pay his way or something, and thus do both the trade and the young man good. In short, we have been giving moral support quite liberally, and what we need now more than anything else is for our support to take on a material form, one of action and deeds as well as friendly comment when the subject is taken up at meetings. Let every man speak a word for them and encourage boys to go to them and even send their own boys, and soon the trade school idea will be taking care of itself.

STRUCTURAL MATERIAL PRODUCTS.

Under the head of structural material, as distinguishing mineral and clay products used in structural work from those used as metals and fuels for abrasives, chemicals, etc., the United States Geological Survey reports the following values for 1908:

Clay products	\$133,198,762
Cement	44,477,653
Lime	11,091,186
Sand-lime brick	961,226
Slate	6,316,817
Stone	65,712,499

It is not difficult to see from this how clay products overshadow everything else, and exceeds even the two next competitors combined—stone and cement—even though 1908 was not by any means a banner year. In fact, the production of clay products was at a comparatively low ebb in 1908, the lowest it has been since 1904. In 1906 it went up to \$161,032,722.

The figures of production are not yet available on 1909, but they are evidently above those of 1908. Whether or not they will equal that of 1906 remains to be seen. It is doubtful if they will. There is some chance that 1910 may break all records. In fact, we hope it will, and if the present wave of prosperity keeps up, there should be in 1910 a breaking of all previous records in the total of clay products.

There is nothing much to lament over in clay products showing up smaller in 1908 when we compare them with other products, because cement also showed up smaller, and so did stone. Stone held its own better than did either clay or cement. The cement production was of lower value than it has been since 1905, consequently this takes the wind out of any idea that the falling off in clay production was due specifically to the competition of cement. Cement, which presumably was a growing industry and had not yet reached its full magnitude, was nearly \$11,500,000 shy in 1908, as compared to 1907, though the reduction in quantity was not so much as the reduction in value. Lime showed a reduction of about \$1,750,000 as compared to previous years, and the smallest figures since 1905. Slate alone, of all the structural material listed, shows a gain in 1908 as compared to previous years. In fact, 1908 was a banner year in slate, exceeding even 1903, the next highest year. This is strong evidence of the turning to more durable roofing material, because the greatest quantity of slate was used for roofing. There is an idea in this for clay products people who are interested in roofing tile, because the same conditions that make for advancement in slate should also make for advancement in clay tile for roofing. And since these conditions were strong enough to make the slate production the greatest in one of our poorest years in building operations, these conditions should make excellent opportunities for rapid development in roofing tile.

Aerial navigation may be more exciting, but the automobile business is still on the boom.

Written for THE CLAY-WORKER.

BRICKMAKING IN RHODE ISLAND.

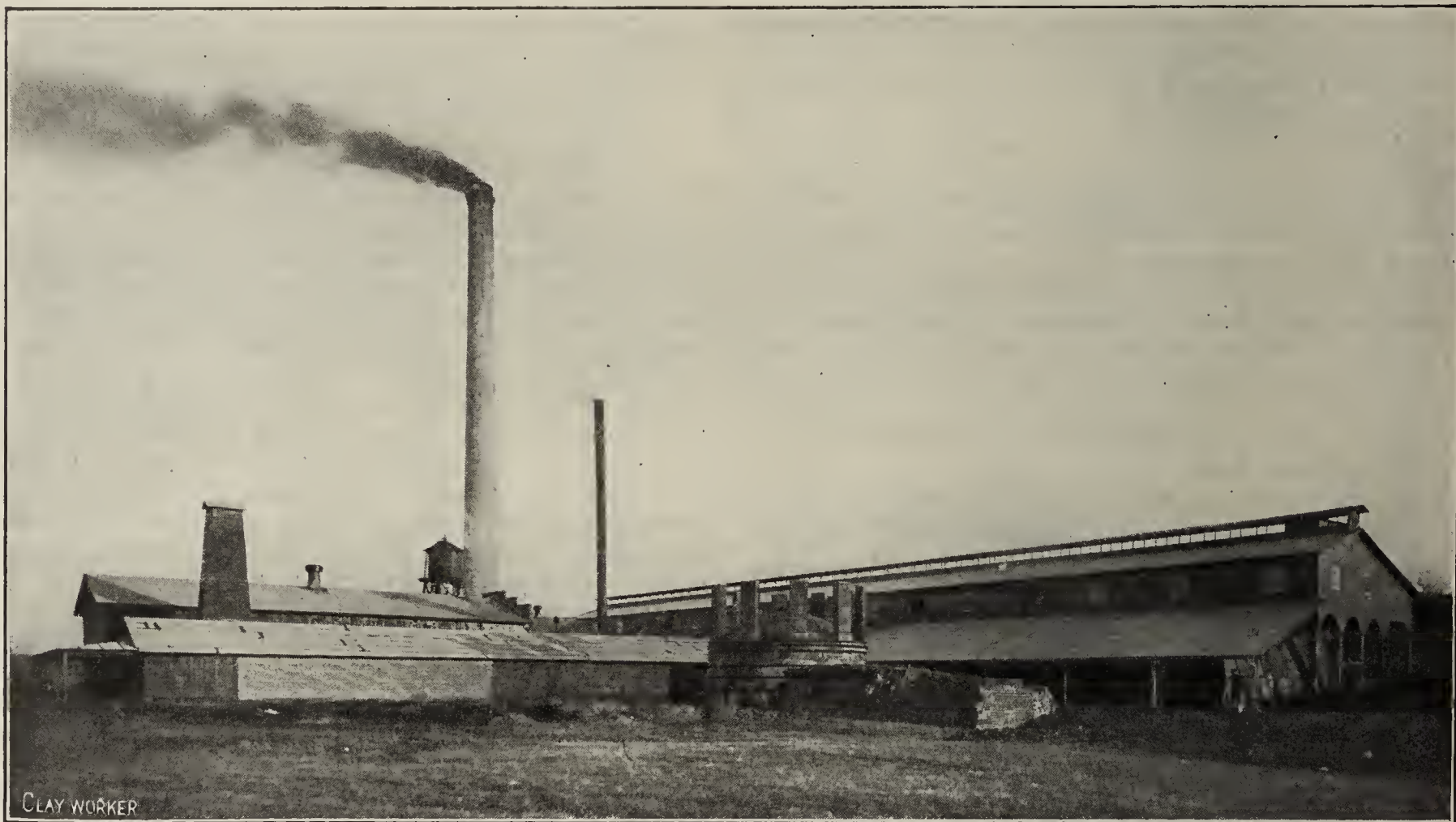
Ashaway Clay Company Fast Becoming One of the Leading Face Brick Manufactories in New England.

THE ASHAWAY CLAY Company was organized in 1907 with a capital stock of \$50,000. This has just been increased to \$100,000, a large part of which is already subscribed. The officers of the company are: President, Geo. L. Babcock, Plainfield, N. J.; vice-president, Geo. N. Burdick, Westerly, R. I.; secretary and treasurer, Frank Hill, Ashaway, R. I., and general manager, Earle J. Robinson, Ashaway, R. I. These officers, together with Chas. Stanton and Ira B. Crandall, of Westerly, R. I.; J. J. Merrell, of Albany, N. Y., and Dr. A. B. Briggs, L. A. Briggs and G. B. Langworthy, of Ashaway, constitute the present board of directors.

The plant at Ashaway, R. I., is equipped with modern

& Westerly, carries freight as well as passengers, opening up a large territory, with low freight rate on brick, to the plant at Ashaway. Most of the coal used at the Ashaway plant is received over these traction lines from Allyn's Point, Conn., where it is loaded from large schooners into cars for inland shipment. This advantage of water transportation gives the company a low freight rate on coal compared to what is being paid in some parts of New England.

It has been known for many years that valuable clay deposits were to be found in Ashaway, brick having been made from the clay when the industry was in its infancy in America. It will be remembered that this section was one of the first settled in the United States. Plymouth Rock is but a few miles away, and there are many buildings and landmarks that have history going back more than 200 years. In the early days brick were made from this clay, and they were good brick, too, as can be seen from some of the chimneys and foundations still standing which were made from these brick. The location of some of these early yards can be remembered by the oldest inhabitants. However, the



General View of the Ashaway Clay Company's Plant, Ashaway, Rhode Island.

machinery, has an abundance of raw material and excellent railroad facilities, so that it has every advantage in the manufacturing and shipping of its product. The company manufactures both common and face brick. The common brick are made by the soft-mud process, while in the manufacture of face brick the stiff-mud process is employed.

At the time this company was organized Ashaway had no railroad connections with the outer world. The men who organized the company have, with their usual business integrity, built the Ashaway & Westerly Railroad, one of the best-built and best-equipped traction lines in New England. This road furnishes freight as well as passenger service, connecting with the New York, New Haven & Hartford Railroad at Westerly, only two and one-half miles away. A spur track from the Ashaway & Westerly road is built into the plant at Ashaway.

At Westerly connection is also made with the Norwich & Westerly Railroad, another traction line, running into one of the best sections of Connecticut. This road, like the Ashaway

making of brick in the old way became a lost art, and it was left to the men of the present generation to develop the industry along modern lines.

It is well known that New England has one of the best face brick markets in the United States, brick being shipped to this market from the states of the middle west. The Ashaway Clay Company has its plant located in the heart of this district and is finding a ready market for all its product.

The company owns and controls some fifty acres of land containing the clay deposits. The clay is a sedimentary deposit, formed from the overflow of rivers or in former ponds or lakes, the stratified layers being often easily separated by reason of a very thin layer of fine sand between them. The deposit extends to a depth of from 30 to 40 feet. Very little stripping is required, from 1 to 2 feet being all the top soil that is found. The first 4 or 5 feet of the bank is yellow in color and contains some small flint pebbles. These, however, are not large enough to give any trouble in the soft-mud machine. The remainder of the bank is gray in color

and is perfectly free from stone. This clay is used for the stiff-mud brick, while the top soil, together with the yellow clay containing the pebbles, is used for the soft-mud brick.

The clay, though high in silica and comparatively low in alumina, gives very little trouble in drying. Usually they are dried in about thirty-six hours, but they have been thoroughly dried in less than twenty hours; in fact, the manager stated that it is almost impossible to get heat into the dryer sufficient to check them. It is very unusual for a clay of this character to give so little trouble in drying.

The erection of the plant at Ashaway was commenced late in 1907, but no brick were made until the spring of 1908. This company had to pass through the experimental stages usually encountered in the operation of a new plant. The stone in the top clay gave a great deal of trouble on the cutting table; at this time the company had not installed the soft-mud machine and was working the entire bank, or, more properly speaking, the top of the bank, for the top had to be worked first in the manufacture of the stiff-mud brick. The clay from the bank was often too wet to operate by

manufacture of face brick. The clay for the soft-mud brick is fed to the machine direct from the bank. From these piles the clay is moved to the foot of a belt conveyer with team and wheelscraper. A shed is built over the conveyer, which provides storage for clay sufficient to carry over rainy weather.

The belt conveyer elevates the clay to a Freese disintegrator, which is placed directly over the pugmill of a Freese intermediate size Union brick machine. Here the clay is tempered and the column from the die is pushed onto a hand-cutting table, where it is cut into brick. Eleven brick are cut at each stroke of the operator. The cutting table is of the shear-cut type and cuts a brick which requires no repressing to satisfy the demands of the most exacting face brick trade. The brick are delivered onto steel pallets from the cutting table. These pallets are placed on rack cars, the brick not being touched with the hands until they are perfectly dry. The company has seventy of these cars, which were furnished by the Ohio Ceramic Engineering Company.

This outfit is now being worked at the rate of 20,000 per



The Machine Room of the Ashaway Clay Company's Plant, Ashaway, R. I.

the stiff-mud process, and dried clay had to be added to reduce the per cent. of moisture. There was also trouble in that the clay did not run uniform when fed to the machines direct from the bank. The clay also lacked in plasticity and a good column could not always be obtained on the auger machine because of this lack of plasticity. These troubles have now been entirely overcome and the product for the past season has been of the best.

The soft-mud machine has taken care of the clay containing the stone. The clay is now dumped in piles to weather before it is used. It dries out in these piles, so that no trouble is experienced in having the clay too wet. When fed to the machines from these storage piles a good mixture of the clay is obtained. The weathering of the clay also tends to increase its plasticity, so that there is no trouble now in obtaining a good column from the auger machine.

The clay is mined with pick and shovel and drawn to the plant in one-horse dump cars, where it is dumped into piles and allowed to weather for several months before it is made into brick. The weathering process is employed only in the

day of ten hours. It can be worked at the rate of 3,000 per hour, and the capacity will be increased to this just as soon as the company can build additional dryer room. The Freese Union machine can be worked up to 6,000 per hour, but it has been found that about 3,000 per hour is all that can be properly taken care of on a hand-cutter and do the work sufficiently well for face brick. The automatic cutter has been tried here, but like some other New England brickmakers, this company has found that its clay is not strong enough to work successfully on an automatic cutting table.

The soft-mud brick are made on a Hercules, Sr., machine, which is set parallel with the stiff-mud outfit. A Caldwell spiral conveyer takes the clay as it drops from the disintegrator and carries it to the pugmill of the soft-mud machine. This conveyer is easily moved out of the way when it is desired to operate the stiff-mud outfit, and is shown in one of the accompanying illustrations moved to one side, so as to permit the clay from the disintegrator to drop into the union machine. A Wellington mold sander is used in connection with the soft-mud machine. The Hercules machine has a capacity of 50,000 per day.

The brick are dried in a waste heat dryer designed by

the Massachusetts Fan Company, who also furnished the fan and the steam coils which furnish an auxiliary heating plant which can be used when waste heat from the kilns is not available. The fan is 120 inches in diameter and is direct connected to a vertical steam engine. The steam coils contain 5,000 feet of 1-inch pipe and are encased in a steel housing, through which air is drawn by the fan. Live steam is used in the coils at night and exhaust steam during the daytime. The condensation is drawn to a hot well and is returned to the boiler by means of a Dean Brothers steam pump. A Crane oil separator extracts the oil from the exhaust steam before it enters the coils.

The brick are burned in a Haigh semi-continuous kiln, which at present consists of fifteen chambers. More chambers will be built next season to increase the capacity of the plant. To provide draft for this kiln the company has built a stack 135 feet in height. The foot of the stack to a height of 25 feet is octagon shape, and is built of common brick of the company's own make. The balance of the stack is round and is built of hollow radial blocks. These are of fire clay and the light color contrasted with the dark red of the base gives the stack a handsome appearance. It has an inside flue 7 feet in diameter at the base and 5 feet 6 inches at the top.

The stack represents a considerable outlay of money, but

One of these is a 7x12 H., S. & G., which operates the fan in the dryer room. The other is a 3 h. p. New York Safety Steam Power Company engine, which is used to operate a bucket elevator for hoisting coal to the top of the Haigh kiln for use in top firing.

The water supply for the plant is obtained from a brook a short distance away. It is pumped to a large storage tank of 3,500 gallons capacity. For this service a Douglas belt-driven triplex pump is used. The tank is elevated to the top of a tower 40 feet in height, affording plenty of water at all times for use in pugging the clay. It is also connected with hydrants which, with the reels of hose at hand, furnish fire protection for the plant. Barrels of water with fire pails are found in all parts of the plant, especially near the kiln and on top of it.

The buildings of the plant are all of substantial frame construction. The main building, which contains the machine room, the engine and boiler rooms, is 36x100 feet in size. This is connected with the dryer room by a shed, through which the cars of green brick are transferred to the dryer. The dryer is of fireproof construction, being built of brick and steel with underground flues of concrete. The roof is of frame construction like the rest of the plant. The dryer room, together with the fan room, is some 40x100 feet in size, and is connected at the discharge end with the shed



E. J. Robinson, Manager.



Top of Haigh Kiln, Ashaway Clay Company's Plant.



G. L. Babcock, President.

it is a source of much satisfaction to its owners as it furnishes a good draft at all times. It was designed and constructed by the H. R. Heinicke Chimney Construction Company, of New York.

To get the best results from this stack the company has installed a draft gauge which is attached to the cleanout door at its base. The draft gauge was furnished by the Hoffmann & Maurer Manufacturing Co., of Rochester, N. Y., and is a very efficient little instrument, as it enables the burner to tell at a glance just what the draft is. It has been found that a displacement of from 1 inch to 1 1/5 inches of the liquid column of the gauge gives best results in the burning.

The Haigh kiln is too well known to the readers of THE CLAY-WORKER to need any detailed description here. It is of the liquid column of the gauge gives best results in the giving most excellent results, both as to fuel economy and quality of the finished product. The fifteen chambers have a total capacity of about 300,000 brick.

The power plant consists of one 125 h. p. D. M. Dillon boiler. It is of the horizontal tubular pattern and is designed for a working pressure of 125 pounds. An automatic damper regulator is used in connection with this boiler and has proved to be a great fuel saver. The large engine which operates the brickmaking machinery is a Green corliss of 100 h. p. There are two other engines used at the plant.

of the continuous kiln. The kiln shed is 70x210 feet in size, covering the entire kiln and affording shelter for the burners at the side fires, as well as when engaged in the top firing. This shed extends over the depressed spur from the railroad, so that the entire operation of the plant, even to the loading of the finished product, can be carried on independent of weather conditions.

Among the improvements that the company has outlined for next year is the enlargement of the kiln—fifteen more chambers will be built, increasing the total capacity to 600,000 and enabling the plant to take care of 30,000 per day; six more tunnels will be added to the dryer, doubling its present capacity; a large storage shed for clay will be built, and an elevated track from the clay bank will be installed, so that clay from the bank can be hauled to the top of the shed, ground in a disintegrator and stored or some time before being used. Underground conveyers will be used to take the clay from this storage to the brick machines, so that the clay can be handled with the least possible outlay of labor. This storage will also enable the plant to operate during the entire season. A storage shed will also be built for the finished product.

Plans covering these improvements are now being prepared. Work will be begun in early spring and it is expected that by the middle of next season the plant will be in full operation, employing every modern appliance for handling its raw material as well as the finished product.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

A Halo Not an Unmixed Blessing.

I WAS IN A deep reverie. It's not often I indulge in one; generally I take a nap instead. A nap is really different from a reverie, so I am told. But I am sure this was not a nap, and, anyway, that isn't what I want to discuss now, or tell about.

One peculiar thing, though, about reveries is that they are generally interrupted, and this one was, which again proves that it was a genuine reverie. A heavy hand was laid on my shoulder and a voice said: "Gates, your halo is on crooked; it don't fit, anyhow." I felt that it was the truth. I myself had all along felt that this was the case, but had hoped that it would not be noticed by the public. I knew that I could easily get a \$2 hat that would fit and get it at most any store, but a halo is different. It seldom fits, even when made to order, and it is almost impossible to wear it jauntily or comfortably. You may take all sorts of pains adjusting it or even have a friend put it on you, but



W. D. Gates and His Halo.

you will hardly go a block before it will lop over or get twisted, or get a dent in it or get tarnished and render you conspicuous and ridiculous.

So I was not surprised when he told me it was on crooked, only hurt and mortified, and I heartily wished he had not disturbed my nap—I mean reverie.

"It's not only crooked, but it's all dented and tarnished, and it's not becoming to you, anyway." He continued, "That old soft felt hat becomes you much better and if you'll take a friend's advice, you'll wear the hat and not attempt the halo. Very few can wear them successfully this side the dark river, and mighty few on the other side, I guess."

"Halos are like Sunday clothes, they do not necessarily make the wearer better. Plenty of clean Sunday suits cover dirty sinners, and ready-made halos do not hide many defects in the wearer. The wrinkles of avarice and bad temper push up from the face and twist a halo worse than they do a slouch hat, and, in fact, when your eye drops from a slouch hat and notes the seams and wrinkles underneath, they don't impress you and shock you as they do when your eye drops to them from a halo.

"Then, too, it's dangerous. You are expected to act the part. If you fail, you do harm and shock the onlooker. In the case of the slouch hat, it is better because the onlooker

does not expect much and his surprise is agreeable.

"Neither is it comfortable. It does not fit your bumps the way the hat does. When you wear it, you feel you are acting a part and you know, you yourself know, you are not on the square. To be comfortable, you must be natural. You can not fool yourself, your own conscience. No matter how many outsiders you mislead, your own conscience will stay right with you and will keep telling you things, and they will not always be comforting or agreeable."

"Take it off, Gates. Trade it off. Give it away. Get rid of it. It don't fit you. It's not your style. It won't stay straight and it does not fool anybody."

It was only a little one and I really think it was not genuine, only imitation, and never was comfortable, and the old slouch hat was so comfortable and reliable, so I put the old slouch hat on and offered him the halo, but he would not take it. Does anybody want it? Will you take it?

GATES.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

THE BRICK BUSINESS in and about New York is over for the season. Navigation on the Hudson river is closed and sales of brick for all purposes are relatively small. Notwithstanding this, however, the price is maintained and dealers anticipate no change before the new output is ready for delivery in the early summer. Not for several years have the various yards been so nearly clear of material when the season closed. Practically everything has been sent to market that was contracted for this season, and those held in the yards will largely go out in the spring to fill contracts then. Coupled with this has been the steadily maintained prices, which broke only once during the season, and then for but a short time, and there is no wonder dealers and others have been jubilant over their success.

With the past year of good business and good profits behind them, it is no more than natural that makers should look forward with a good deal of expectation to the season to come. According to the present indications, the season will see even more building in and about New York than the one just closed, and this will have the effect of stimulating the brick business materially.

If the business is managed as judiciously as it has been the past few years, there will be no question of the profits. Movement in all varieties increases steadily, but the judicious manufacturer does not undertake to force this increase. Demand, he believes, should go ahead of supply, and there should be a growing request for brick before manufacturers determine to increase their output.

The new municipal building for New York, to cost \$8,000,000, is to be erected shortly. Whether it will be awarded soon or late is not detailed as yet. It will be one of the large contracts of the year when it is given out, and the work will require many thousands of brick before it is finished. The building is to be modern in every sense and will be equipped with all modern ideas and appliances for conducting business, no matter what its kind or what is done in the city government. In addition to the provision for the city departments, there will be provision for many offices besides. It will, therefore, be a source of revenue, partly enough to pay its running expenses, at least.

Up the river all is now silence. The work for the season is over and the manufacturers are waiting the return of warm weather. The plants along the Hudson are buried under snowdrifts, and the river itself is covered with ice some of the way, conditions which do not conduce to profitable or liberal brickmaking. A few brick are left to be taken to market by train, but the orders to be filled in this way are not numerous, and the quantity which goes thus is relatively small. It is understood, however, that some orders will require more shipments by train than usual, and that buyers have stipulated in some instances that shipments shall be thus made.

BURTON.

THE POTTER AND HIS WHEEL.

Written for The Clay-Worker by Prof. Charles F. Binns.

WHO WAS THE first potter? Echo answers "Who?" Whoever he was, it is certain that he did not use a wheel. The oldest literature of which any trace remains makes mention of pottery, and the most ancient records of human activity are fragments of burned clay, which often have been shaped by the unaided hand. It is commonly stated that the potter's wheel was invented by the Egyptians, but archæological research is showing that most of the arts of this ancient race were derived from peoples yet more ancient, and yet there are tribes now living who make large quantities of pottery, but have never learned the mysteries of the wheel.

Time was when every producer of pottery depended upon the wheel for a large part of his wares, but the advent of the machine has largely set aside the skilled turner and he must now be sought in certain limited fields, from which, even, he seems to be doomed to disappear.

In the strictly industrial sphere of manufacture, the production of stoneware alone affords scope for the turner. Jars up to thirty gallons are still made on the wheel in some places, and it is here that the potter will be found. His work is largely mechanical, for no play of thought or fancy is possible. The ball of clay is accurately weighed, that the jars shall not vary. The size is worked to points and measurements, and there seems but little reason why the work should not be done by a machine.

The observer never tires of the wheel. A mass of clay, adapted in size to the piece to be made, is set solidly upon the wheel head. Power is always available to the modern turner and by a pressure of the foot or knee connection is made. The plastic clay is well moistened for lubrication and vigorous pressure as the wheel revolves secures the proper centering of the ball. This requires great muscular power. The resistance of the clay must be overcome. The master hand must prevail. Now the clay is revolving with perfect accuracy. The mass seems as motionless as a sleeping top. In order to preserve the accuracy of this motion while beginning the hollow form a tool called a "ball-opener" is employed. This is a stout arm, hinged at one end of the bench, and provided with a rigid foot which is gently pressed down in the center of the ball. As it enters, the clay rises in a ring and a sidewise pressure opens the clay to the width of the nascent jar. The "ball-opener" is so fitted that it can not penetrate the clay to its full depth. The thickness of the bottom is provided for and the sidewise motion is gauged so that the bottom of the jar shall be thinner in the center than at the edge. This is to secure immunity from cracks in drying and firing.

As the "ball-opener" is lifted out of the way the clay is seen to be in the form of a shallow circular dish, with very thick edges. Now the free hand work begins. The turner lays both hands upon the further rim of the clay dish, using water for lubrication, and by a grasping, pulling motion the edge is made to rise towards the center, growing thinner as it rises. The diameter of the top is much less than that of the proposed jar, because the centrifugal force always tends to enlarge it. The clay now appears like an inverted pail without a bottom and the walls are nearly two inches in thickness.

The potter thrusts his left hand inside the cone, and, with the right hand outside, the "knuckle-draft" is begun. At the bottom of the clay wall the knuckles oppose each other, left hand inside, right hand outside, and the two

together are slowly raised, pressing the clay between them. The wall grows thinner under the pressure and rises in proportion until almost the full height is reached. The sympathy of the potter for his clay is manifest at every step. There is no rude handling, no forcing of the issue, but a strong, firm coaxing, so that the plastic material may be brought to obedience without strain or distortion.

The potter now takes a thin, flat piece of wood, measuring about four by three inches, and known as a "rib." This serves to remove the ridges which the knuckles have left, and, being held in the right hand, the "rib-draft" is begun. This starts at the bottom, the left hand inside, just as the previous operation, and by a renewed upward pressure the jar is brought to its final thickness and height, when a sponging off and smoothing complete the work.

Such is the stoneware potter, almost the only survivor of a noble craft.

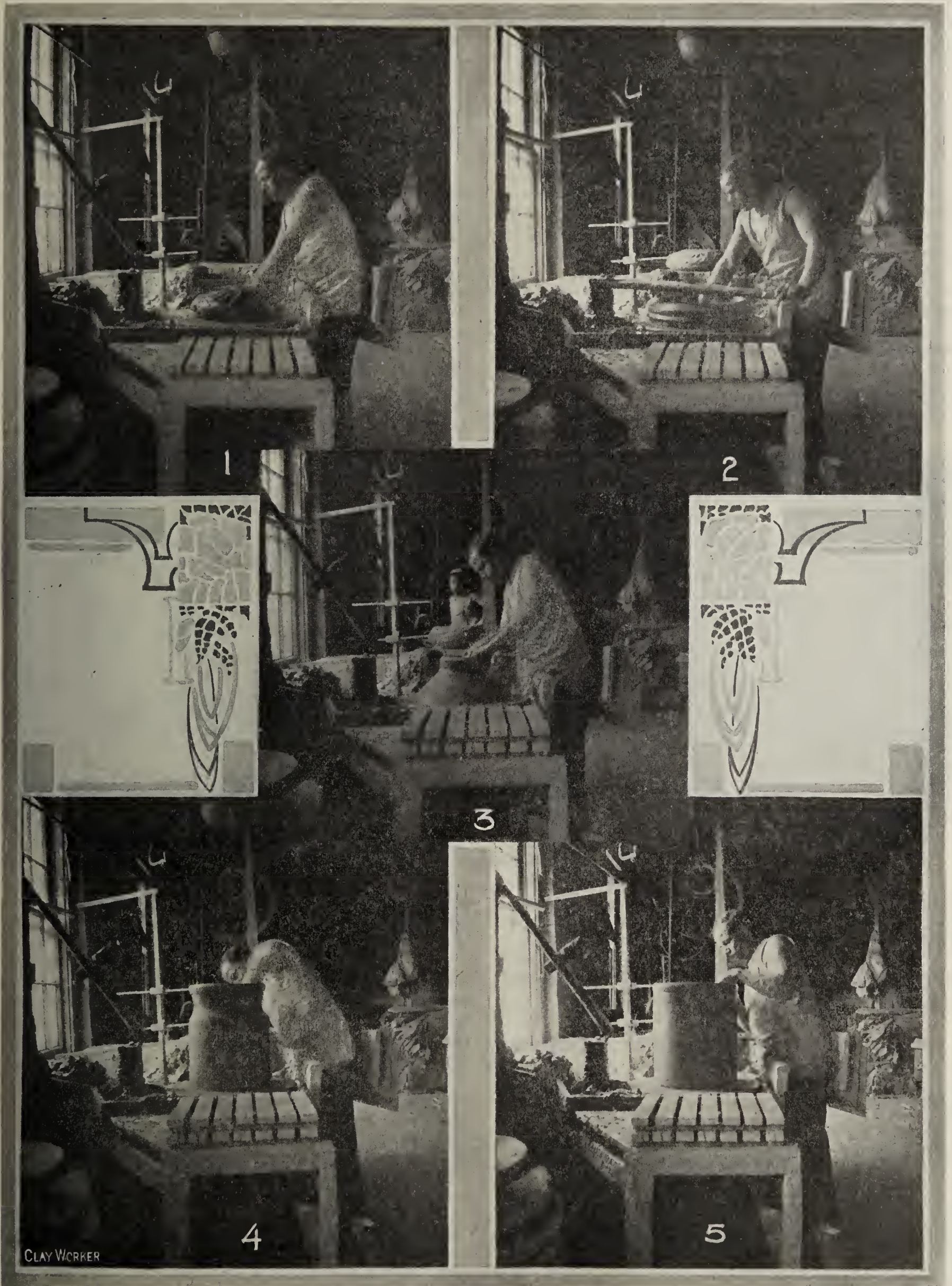
If one asks why should the craft perish, the answer must be that commercialism is killing it. In the case of the stoneware jar, there is no sound reason for the continuance of the wheel. Jars made by machinery are every whit as useful as those turned freehand, and there is no pretense of self-expression in the product. The potter has survived thus far in the stoneware industry because the installation of machinery involves the expenditure of capital, and in the almost mechanical action jars can be rapidly made. Then, again, a great many processes in pottery are traditional and most of the factories were built in the days of the "kick-wheel." Once the potter was an artist. At the wheel he was a creator and he evolved beautiful forms from his own fertile imagination. Then came the purchaser who wanted vases in pairs, two exactly alike. It was the glory of the potter that he never repeated himself, but the demand was bound to be supplied and so he resorted to molding, and vases were produced in numbers as alike as peas in one pod. Think of demanding of a painter that he duplicate his pictures, so that one might hang one each side of the mantel! Such a requirement would assuredly kill the painter, too.

Some men who glorify their art have made a stand and still endeavor to produce individual wares. They have fought a good fight and some have been beaten, but at last there is arising a demand for the expressive work "wrought upon the wheels."

Will it continue? Who knows. Will the public ever care enough for good things to pay the price? For it can not be denied that to produce a unique piece must cost more than to make hundreds all alike.

The craftsman works primarily for his own satisfaction. The "joy of the working" is his, but sad to say, joy will not pay the rent nor recompense the meat trust. Perhaps it is for this reason that fine works of art or craft have never been produced except under the wing of the patron. In this country we need a Pericles who will be patriotic enough to foster the arts at home. There are many who are glad to import the works of foreigners and it is good for the country to have them, but it would be good also, perhaps better, to stimulate individuality of work at home, and to lay the foundations of American craft while there is yet the remnant of an early skill remaining.

And this is true not of the potter alone, but of the dyer, the weaver and the woodworker. In a very few years the last of the home industries will have disappeared—crushed



FIVE STAGES IN THE DEVELOPMENT OF A THIRTY GALLON JAR.

by the inexorable heel of the machine. When this brief space of time shall have elapsed there will be no one to show the aspiring potter how to shape the plastic clay. The old loom will be broken up for kindling wood or laid in a dusty attic because the skilled hand is in the grave.

It is possible to guard against this condition. The remedy is in the demand. If the purchasing public will ask for genuine work it will be forthcoming, but alas! there is a widespread feeling that it is a waste of time to take trouble.

The question will inevitably arise here, "What advantage is there in these things?" The answer is a long one and we have not space to state the argument in full. Briefly, it may be expressed thus: The purpose of individual work is not the work, but the individual. Our people are suffering from a lack of interest in life. Money is god. The streets are full of boys and girls with no purpose in life, with nothing which is worth while on hand. The sorest need of the body politic today is occupation. With all the whirl of wheels and rush of business, as a people we have nothing to do; we have no time to occupy ourselves outside of the race for money. Hence the need of something interesting to do—something which will compel leisure and thought and self-expression.

Of these the potter and his wheel are typical, and the

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



WING TO THE "good old-fashioned winter," appreciated more as a part of childhood's happy memories than as a matter of hard, cold fact, the pace in the building line has not been quite so strong during the last month as it was up to the first week in December, and there has been a slight let-up at the permit window in the city building department. At that the record is not falling so very far behind that for last year, and there is every indication that there will be a big jump within the next three months.

As things are, all the good folks in the material business, manufacturers and dealers, are thinking of taking things a bit easier for a few weeks, and, wherever possible, getting the rest and recreation which they earned so well during the strenuous twelve-month just closed.

W. D. Gates, president of the American Terra Cotta and Ceramic Company, famed for his button-hole talks and his Teco ware, is turning his face from the frozen north toward the smiling blue of the Mediterranean, and ere long he will be busy with his sketching block and pencil again, indulging



The Machine Method of Making a Thirty Gallon Jar

message which he brings to the world is, "No man having drunk old wine straightway desireth new, for, he saith, the old is better."

MACHINERY PART OF THE REAL ESTATE IN A MANUFACTURING PLANT.

In giving its decision as to whether or not the mortgagee was entitled to hold the machinery in the shops under a mortgage given on the real estate, the United States Circuit Court of Appeals recently said that under the decisions of the Supreme Court of Wisconsin, as well as those of the Supreme Court of the United States, in manufacturing plants where machinery is used in connection with the plant, the intention to devote such machinery to the use of realty, accompanied with the act of bringing it on the realty, amounted to annexation to the realty as between mortgagor and mortgagee.

Therefore, if a manufacturer gives a mortgage on the real estate of his plant the mortgagee may hold the machinery owned and used by the mortgagor as part of the plant, and, if necessary, foreclose and sell same.

his artistic soul and gaining new inspirations for the betterment of his own western world of pottery and architecture to which he will return anon after his holiday.

Edward K. Cormack, vice-president of the Wisconsin Lime and Cement Company, "braw Scot," has heard the call of his native land and arranged to sail for Glasgow on the steamship California on January 22. From there he will set his face toward John O'Groat's, not that he intends going clean through to Scotland's jumping-off place, but he is going back to his native shire of Caithness, of which John O'Groat's is the extreme northwestern point. It will be the chill, bleak season in the "land o' the stir about," and Mr. Cormack would fain have chosen a more pleasant time of year for his visit, but building material men can not be choosers when it comes to seasons, and he is obliged to take his outing now or not at all.

Statistics on the last year in building in the city stated in various ways are interesting. For instance, it is calculated that the frontage represented in new buildings would make sixty solid miles of building done in this city during the year of 1909. The total number of buildings was 11,455, and the total estimated cost involved \$89,633,580.

Great as the record of the old year was, however, and slack as actual purchase and delivery of materials is just

at present on account of the aforesaid dear old-fashioned winter we love to hear and tell about, there are plenty of auspicious happenings to make the dawn of the new year bright for the brick, terra cotta, tile and fireproof man. One of the big projects just brought to light is said to be one of the largest of its kind in the world and will require the expenditure of \$2,000,000 for the building alone. This will be the new National Furniture Exchange building, to be erected on the North Side. While it is to be of reinforced concrete construction, exterior beauty is not to be sacrificed, and it will have a facing of handsome front brick and white enameled terra cotta. This building will be 1,125 feet long. Approximately fifty acres of space will be covered by the structure. Joseph J. Schneider, for many years a representative of furniture manufacturers, is at the head of the enterprise. This building marks still another step in the development of a great and high-grade warehouse and manufacturing district.

With the letting of a \$700,000 contract for the completion within sixteen months of the Harper memorial library of the University of Chicago, the first step has been taken toward the completion of the largest and most costly single group of university buildings constructed in modern times. The buildings probably will be known as the Harper group and will extend for two blocks along the midway on the southern front of the main campus. There will be seven structures in the completed group, representing an expenditure of millions, and all will be connected by cloisters, as are the other building groups on the campus. They will be built in the Gothic and later pointed type of architecture, and the exterior will be of Bedford limestone, like the other buildings, but like the other buildings, much fine front brick as well as common builders will be used for interior work, and the steep roofs will be covered with the maroon tile which gives to the building their note of warmth and color. Thus far the Akron (Ohio) tile has been used on the roofs of the other university buildings.

The two 138-foot towers of the Harper library will mark the center of the group, balancing the Mitchell tower group already built at the northeast corner of the campus. Two of the seven buildings, Haskell museum and the law building, are completed. The Harper library will be the largest and most costly, and work upon it will be begun so soon as the weather opens up a bit. The great reading room, accommodating thirty-eight more readers than does the Library of Congress, will be the monumental feature of the building. The lofty ceiling, vaulted and groined in the style of the great mediaeval cathedrals, will rise to the height of 100 feet. Tables for 288 readers will be placed in this room, and in the stackrooms underneath there will be provision for 200,000 volumes.

The city of Chicago, in addition to much brick street paving, will spend several millions of dollars in building new fire and police stations in various parts of the city, if a proposed bond issue for \$10,000,000 gets popular approval. One of these projects calls for an \$800,000 building in the downtown district. It will be of brick and fireproof construction, and in addition to housing the central police headquarters, is designed to include a city jail, police court facilities to take the place of the Desplaines and Harrison street courts, and quarters for police reserves in time of strikes and riots. In addition, a barracks for the mounted police force is to be erected. Branch library buildings costing about \$250,000 in total also are planned, if the proposed bond issue carries at the April election.

The Wisconsin Lime and Cement Company, which has been nicknamed by some the "builder's department store," because of the varied line of materials which it carries, is preparing to give even more attention than previously to brick and clay products materials. The company will double its room for the display of handsome front and ornamental

brick. This room will be artistically arranged. It will be divided from the rest of the suite of offices by a wall of the new Twin City interlocking block, which already has had considerable use in Minneapolis and St. Paul, and which the Wisconsin Lime and Cement Company will push in Chicago during the coming season, advocating its use in some instances in the place of enamel brick on large buildings. "Rugosa" is the name which this company has applied to the wire-cut face and mat-finish brick made especially for it in Ohio and Pennsylvania. This name is derived from the Portuguese word meaning wrinkled, and will apply to all shades and colors of the brick of this finish, which is proving popular. Brick of this character, made up under the direction of Dwight Heald Perkins, architect of the Board of Education, are being used in the Nobel and the Harper schools to the number of between 800,000 and 900,000.

During the past year this company furnished about 1,500,000 paving brick for Chicago work and a like amount for paving in Milwaukee, the Bessemer block being used here for the most part, and the Danville block in the "Cream City."

Passing through the downtown streets, it becomes evident that there is to be no dearth of new buildings started during the coming year in addition to the Sherman house, the Steger building, the People's Gas, Light and Coke Company's building, and a large number of other structures. Unless there is an unlooked for turn in existing prosperous conditions, 1910 will be right on the heels of 1909 when it comes to building records.

SCRIP.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE KENTUCKY METROPOLIS.



HIS SECTION of the country has been held in the grasp of a very frigid spell, and the deep snow has added such difficulties to operations in clayworking lines that many of the plants have been forced to close down until the situation shows an improvement. Even delivering brick and other clay commodities has been temporarily dispensed with, owing to the condition of the streets and roads, and there can be little hoped for in the way of a change in this respect until the snow has cleared.

There is a fair amount of manufactured stock on hand, but as building operations have not been progressing for a week or so, there is small need for any deliveries of this kind, and the clay manufacturers say that they must simply wait until there has come a change for the better. The reports continue to increase as to the demand for the present year, and the building prospects look most hopeful for many lines of clay goods. Not only will there be considerable structural work, but there will also be considerable street and sewer work, and the demand for such structural clay materials for use in such undertakings will be larger than for several years.

There has been allowed a larger tax for street reconstruction and repair work in this city this year, and there will be a considerable amount of this done before the close of the present year. There is an urgent need for this, and the indications seem favorable for at least a very fair share of brick work. The completion of much of the large sewer work here will also make possible a larger demand for sewer pipe, and the indications are favorable for the industry.

Just as soon as the weather permits, the matter of reconstructing several streets at Lexington, Ky., with brick will be undertaken. The cost of this work will be considerable and the improvements will do much for the city. A large number of streets are already paved with brick and they have given eminent satisfaction to the residents, as is attested by the fact that others are being constructed with the same material.

Mrs. Elizabeth L. Smith, wife of C. O. Smith, the well-

known brick man here, died several weeks ago at the age of seventy-one years. Mr. and Mrs. Smith celebrated their golden wedding anniversary a short time ago.

The Louisville Sewer Pipe Company, which was recently incorporated here, have opened a warehouse at Eighth and Zane streets, and are now doing business. They say that the indications for the present year are in every respect gratifying for the sewer pipe demand.

The Hydraulic Brick Company say that they are able to continue operations at their brick plants despite the inclement weather, and they do not contemplate closing down this winter. They have on hand a number of orders that demand their attention and will continue to manufacture brick, so that they will not be short of stock when the need for brick comes.

The Southern Brick and Tile Company were forced to close down their large plant for a few days during the very cold weather, but they are able to continue operations now. The severe weather naturally had its effect on the situation, but they were able to continue fairly well. The indications as they find them favor a much better demand for the present year, and they have on hand a large number of orders for both brick and tile. They are doing considerable work

not resume until conditions become more favorable. They have orders on hand for a number of brick.

The Louisville Pottery Company say that there is a very fair call for earthenware, and that the indications favor a good year for them. They also have been somewhat handicapped by the severe weather.

The Louisville Brick Company has closed down their plant for a time, the cold weather seriously interfering with operations at their plant. They do not anticipate resuming so long as the cold continues severe. The outlook, however, for brick is good, and they are well supplied with orders.

The West Point Brick and Lumber Company at West Point, Ky., will not attempt to do much until the cold weather has subsided. They have on hand a very fair amount of brick and orders that will more than take care of their present supply, but they will not be able to do much toward manufacturing any stock until after the winter months.

The Kentucky Vitriified Brick Company is not attempting to do much these days. As the cold weather seriously interferes with their operations, they feel that it is useless to do much in the manufacture of brick under such conditions. Mr. M. J. Bannon, president of the company, is now at



Section of the Stock Yard.



Abandoned Incline at Plant of Chicago Sewer Pipe Company.

in fancy brick lines, and have orders now that demand a number of varieties.

The West Virginia Clay Products Company is progressing with their plant at Charleston, W. Va., as well as they can, considering the weather. Mr. Robert Yates, secretary and treasurer of the company, left several days ago for the scene of action, and stated before leaving that they hoped to be in operation about March 1.

The Louisville Fire Brick Works has been able to make very fair progress at their plant at Highland Park, Ky., and say that the indications for business in fire clay lines are improving. They feel that there will be a very fair business this year, and a much more active demand than was noted in the past year.

The P. Bannon Sewer Pipe Company is now operating about one-half time, due to the cold weather. They are to continue on this time until the cold spell is past and will then resume on full time. They are finding the situation good as far as orders go, and are well able to take care of all present demand.

Thomas McCullom & Co. report that the cold weather forced them to cease operations for a time, and they will

Owensboro, Ky., where the clay mines are located, looking over the situation there.

The Burrell & Walker Clay Manufacturing Co. finds the situation fair, though the weather has put a temporary stop to their operations. They can not hope to do much as long as the situation continues as it has in the past few weeks. They hope for a better turn to affairs soon, so that they can again resume operations.

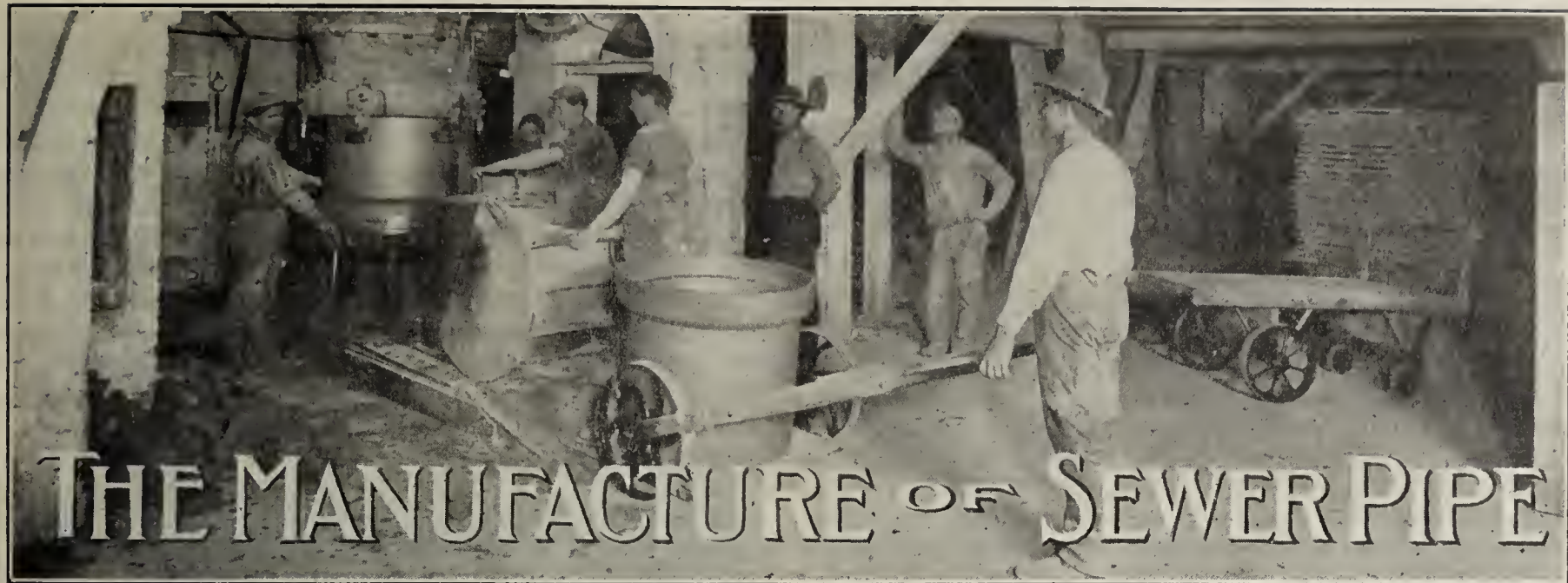
C. O. L.

REMOVING THE BAR OF THE STATUTE OF LIMITATIONS.

Where a liability, claim or debt is barred by the statute of limitations, the bar shall be removed by an acknowledgment of an existing liability, debt or claim in writing, signed by the party to be charged.

In *Hawkins vs. Brown* the Supreme Court of Kansas decided that this acknowledgment must be an admission of a present subsisting debt. For instance, it is not enough that the debtor writes a letter admitting that he signed the note you may be endeavoring to collect.

He must also admit that he still owes you on that note. Bearing this point in mind, business men may often get an outlawed account properly acknowledged and subsequently collected.



THE MANUFACTURE OF SEWER PIPE

Written for THE CLAY-WORKER.

A LITTLE OF ITS HISTORY AND A DESCRIPTION OF A TYPICAL SEWER PIPE PLANT.

WHILE WE CAN not say that the manufacture of sewer pipe is "as old as the hills," still we can truthfully state that it antedates almost every other clay industry with the exception of brick and the making of the crude clay vessels used for cooking utensils by the old ancients. It is the history of the ancient cities that gives to us the incomplete knowledge of the age of this most helpful industry. Proper sewerage systems were necessities early recognized by the ancients, for we find the early history of sanitary science veiled in antiquity. Indeed, the carrying away of the filth of the city by underground sewers is very old. The temple of the city of Jerusalem had a very perfect system of sewerage cut out of solid rock, which is yet in as good condition as when first constructed. Alexandria, Carthage, Herculaneum, Nineveh and Rome had complete systems of sewerage and water works, of which a writer has said, "They are both extensive and complete." The Cloaca of Rome has been continually performing its present duties for about twenty centuries. There are other convincing proofs that at one time in the early history of the human race the art and science of efficient sewerage was well understood by the people of the far East, even as early as the beginning of the "Christian era."

If we could find any authentic records of the very first attempts at sewer construction, we should very probably find it to have been of a very crude and primitive nature. Before the art of forming cylindrical tubes or pipes from clay and burning them was discovered, wood, stone, and later on brick, were, no doubt, each employed in turn. But it is certain that

the use of vitrified pipe from clay was not very long delayed. Sewers built of them have been unearthed in the excavations of Pompeii and Herculaneum, which cities were destroyed by an eruption of Vesuvius A. D. 79.

The Rev. F. S. De Haas, a United States Consul to Jerusalem, in an official communication, wrote: "Vitrified clay is among the most durable materials known. While the marble palaces, temples and tombs of Rome and other cities have crumbled away, those built of brick remain almost perfect. The use of terra cotta for images, ornaments, drain pipes, coffins and vessels of various kinds dates back to remote ages. Sewer and tilings used in the construction have been found in Pompeii, Troy and Nineveh, also in Ur of the Chaldees, the home of Abraham and the oldest city in the world. Here it was in general use, the tombs being drained with clay pipes as sound as when laid in the ground over 4,000 years ago. The coffins are also of the same material and of different shades, some like caskets with lids and others round like bottles, which were sealed up after the corpse was inserted, and there they are at the present time by thousands in the same condition as when they came from the potter's hands. Nothing is now known more lasting than these. Whether the ancients knew the secret of glazing their pipes with salt, I have not been able to learn, and it may be that we moderns may take the flattering unction to our souls that in the art of salt glazing we have a genuine invention which belongs to our age."

This tells us but a little of the ancient history of sewer pipe, but it is sufficient to show that the burnt clay pipe has long been used and never found wanting.

These ancient pipes were, no doubt, made by hand and were much more difficult to make and burn than they are today, for with the advance in civilization, methods of hand-



Panoramic View of the Chicago Sewer Pipe Company's Plant, Brazil, Ind., Showing Clay Pit, Inclines and a Portion of Factory.

ling materials by machinery were perfected, new ideas and theories were proven, and problems settled which made the manufacture of sewer pipe not only easier, but far superior to the old ways and means.

Perhaps no stricter regulations are made for any clay product than vitrified clay sewer pipe, unless it be the electrical porcelain insulators. Some of the government specifications made on sewer pipe are as follows: They must have the property of retaining perfectly their contents during the flow, whether of sewerage or water, i. e., they must be impervious to moisture; they must be able to resist the action of acids contained in the sewage (this requirement is met in salt glazing), and they must be sufficiently strong to resist a considerable pressure, either a bursting pressure from within or crushing pressure from without.

The sewer pipe manufacturers of this country are making excellent ware; especially is this so of the Chicago Sewer Pipe Company, who own a large plant at Brazil, Ind. They make a sewer pipe of dense, sound body, capable of enduring heavy pressure, and so far vitrified throughout as to render it impervious to moisture, independent of any glaze, but likewise well and thoroughly glazed inside and outside.

A Trip Through the Chicago Sewer Pipe Company's Plant.

The plant is located three-quarters of a mile south of the center of Brazil, Ind., on branches of the Vandalia, E. & I.



Large Tile Waiting Their Turn in Kiln.

and C. & E. I railroads. This factory, which was built in 1892, is manufacturing a complete line of piping from 3 to 24 inches in size. Their output is over 1,200 cars annually, the shipments being principally in Indiana, Illinois, Ohio and the west and northwest.

The company owns immense clay and shale lands that extend in all directions from the plant proper and cover hundreds of acres of ground. There is enough raw material now in sight to last the company for a score or more of years. At the rear of the plant we can see an excellent face of clay and shale, the bank from which they are taking the raw material. This is nearly 90 feet high. There is an 8 to 10-foot bed of very plastic surface clay at the top of the bank, underneath which is a 55-foot vein of shale resting on an 8-foot strata of fire clay. Under the fire clay is a 2 to 4-foot vein of coal, which is used as fuel at the plant, but not proving sufficient for the entire work, coal must necessarily be shipped in.

The clays and shales are taken from the open pit and shoveled into end-dump wooden cars of the company's own make. These cars are pulled up a steep incline to the storage shed in the factory building by means of a cable and winding drum. The incline is 300 feet long. A glance at the accompanying panoramic view of the pit and plant is sufficient for the reader to learn the method of their handling the clay

from pit to plant. The plant proper is confined in one large three-story building, which offers sufficient room for the present output. The raw materials are dumped into a storage room having a capacity of two weeks' supply. The clays are not aged or stored for any definite time, the materials being used as fast as careful manufacture will allow. The clays and shale are mixed in certain fired proportions and ground in a Taplin-Rice-Clerkin 9-foot dry pan, from which the ground material is elevated to a gravity screen of the company's own make and from thence dropped to storage bins, from which it is taken as needed to Taplin-Rice-Clerkin Co.'s 7-foot wet pans. All of the pans are located on the main floor, while the screens are in the third story. The prepared ma-



Car Loaded With Small Pipe Ready for Shipment.



Interior View of Kiln Set With 24-Inch Pipe.

terial is taken from the wet pans to the top of the building by means of cup elevators, and is then sent down chutes to conveying belts on the different floors.

On the third floor they operate a small Taplin-Rice-Clerkin press, while on the second and first floors two large presses furnished by the same company are employed. The largest size pipe are made on the lower floors, while only small pipe are made on the third.

On the third floor you can see how the clay is fed from a wooden chute into the press operating on the second floor. A certain amount of clay is allowed to come from the chute at a time, dropping on a conveying belt which carries it to a flying feeding belt. This throws the clay directly into the

press. The press consists of a large steam cylinder with a piston operating in a smaller cylinder known as the round drum, into which the clay is introduced and forced through the die at the lower end, a well-shaped sewer pipe.

It is interesting to watch the workmen making these large size pipes, which need a great deal of care in handling, as they are more easily warped and damaged than the smaller ones. A lever man sits at one side of the press and pulls the lever which sets the machinery in operation that lifts the stool below the press and raises it to the correct position in the press. The hydraulic press keeps the stool fast and the socket of the pipe is made. The stool then slowly lowers with the pipe resting firmly on it. The top of the tube of clay is cut by hand with a wire and the pipe taken off the stool by two men, a wooden drum placed inside and the top of the pipe cut off in a single pass of the wire to the length required for the green pipe. A turn cage with a board placed on the upper edge is now swung over and fitted close to the pipe. Then the pipe is lifted and quickly inverted on the cage and placed on the opposite side, where a two-pronged truck is pushed under the board and both board and pipe are thus picked up and carried to the drying floor.

There are three large drying floors in the building, one on each floor, the three covering 90,000 square feet of space and taking 15,000 feet of pipe in the drying with steam. Five elevators are employed in transporting the pipe from the different floors on their way to the kilns. The pipe are burned in fifteen round down-draft kilns of 30-foot diameter, fired with coal. In setting the kilns, great care is exercised to have the pipes set level and the correct distance apart. The large pipes are set on rings, pieces of pipe the same size as the pipe, but only 3 inches broad. The object of this is to prevent spoiled pipes. The pipe standing on the bottom of the kiln having considerable weight on it from those above is liable to crack in the process of contraction during burning. Hence the ring is placed between the bottom pipe and the floor of the kiln. The ring will probably crack, but the crack will usually spread no farther. The pipes are set socket upwards, a little silica sand as nearly pure as possible being sprinkled inside of each socket to prevent the pipes sticking together in burning. Two feet length are set four high, or a total of 8 feet. Lengths of 2 feet 6 inches and 3 feet are set three high. Small pipes are nested inside the large ones. In the setting, care is taken to have the pipes stand perfectly plumb and set as tightly together as possible, so as to have no slack places in the kiln. In addition to this, the setter takes soft clay and on the top courses of pipes with a small portion of clay binds the socket of every pipe to its immediate neighbor. The pieces, of course, burn hard, and thus, as it were, lock the whole contents together. As they do not unite to the pipe, they are easily broken off when the kiln is drawn. In addition to this, small traps and odd shape pipe may be placed in the top of the kiln which will help bind the whole together. After the kiln is closed, ninety hours are required to complete the burning, the salt glazing being done at the finish of the burn, the salt being thrown into the fire boxes. Frink pyrometers are used on all the kilns, thus giving them an accurate method of recording the kiln's temperature at any and all times.

The burned ware is taken from the kilns and placed in the stockyard ready for shipment. The stockyard will hold nearly 300 cars of pipe. The power of the plant is furnished by a 250 h. p. Reynolds corliss engine, while the plant is lighted by means of gas.

The water supply is obtained from two large ponds adjoining the plant on the west.

They make most of their own repairs at the plant, though the location of the factory in such close proximity to Brazil causes them little worry on this score.

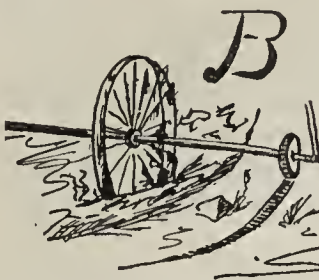
The main office of the company is on Main street, Brazil,

although there is a small office at the plant. The company is busily engaged filling large orders, and has found business good in their line.

Mr. Herbert Page and Mr. William H. Joyce are the owners of the plant, while Mr. Martin W. Lauer is the general manager.

Written for THE CLAY-WORKER.

BRICK NEWS FROM CLEVELAND.



BUILDING FOR THE new year is opening up in good shape in Cleveland and the outlook seems brighter than in years. New projects are constantly being announced, and the brickmakers look for an unusually heavy demand for their product. It is confidently predicted that the record of the year

when closed will be the best the city has ever known.

E. A. Roberts, secretary of the Builders' Exchange, estimates that twenty millions in money was spent last year in Cleveland and \$10,000,000 more involved in contracts held by Cleveland contractors, but executed outside of the city limits.

"A notable feature of the year," says Mr. Roberts in an interview, "has been the advance in the demand for buildings of fireproof construction. In this regard all previous records were broken. The number of buildings of brick and steel for which permits were issued was 745, as against 694 for the previous highest number in any year. This tendency toward buildings proof against fire is certainly greatly to the city's benefit, encouraging also a character of construction both durable and attractive."

The new buildings to be erected this year are not confined to any class. They include monumental structures, office buildings, stores and factories of all descriptions. Already projects aggregating fully \$10,000,000 have been announced, while many others are being worked out in the offices of the architects.

The common brick market is not very active at the present time, as building operations have been forced to cease on account of the heavy snows and cold weather. Common brick are now selling at \$6.50, delivered, for run of kiln, and \$7 for all hard brick. This has been the uniform price for four years. The standard brick in Cleveland are $8\frac{1}{4} \times 4 \times 2\frac{1}{8}$ inches in size.

The Y. M. C. A. of Cleveland starts next month on a campaign to raise \$500,000 for a new building, which is to be begun this spring. The association received a similar sum for its present quarters, which are to be replaced by a fifteen-story hotel as soon as a new building for the Y. M. C. A. can be erected.

No less than three good-sized theaters are planned for Cleveland this year. Negotiations are proceeding with New York parties for the leasing of the new \$75,000 theater which is to be built in the rear of the Pythian temple.

The owners of the St. Regis apartments, the Euclid and Genesee Realty Co., have mortgaged the St. Regis, which is the finest apartment in Cleveland, for \$120,000, and will expend the money for the addition of several stories to the top of the seven-story structure. Right across the road from the St. Regis the Anshe Chesed congregation will erect a new \$150,000 Jewish temple this spring. It is the old home of Cassie Chadwick. The exterior facing will be of stone, but several hundred thousand brick will be used in the new building.

School Director Charles Orr has asked the School Board to appropriate \$500,000 for new buildings this year.

The Wigmore Realty Company, which recently acquired land on Euclid avenue opposite the Hotel Euclid, is preparing to erect a five-story fireproof structure with a frontage of 100 feet and a depth of 100 feet. The four upper floors will only be 80 feet deep.

Contracts are to be let within the next few weeks for the

new clubhouse of the Cleveland Athletic Club. Plans have been drawn by Architect J. Milton Dyer, making it a seven-story instead of a five-story structure. The baths and gymnasium will be on the two upper floors. The building will be entirely of brick and terra cotta, the design being unusually elaborate. It will cost about \$250,000. Actual work, which will commence April 1, will complete the structure within a year.

The Plain Dealer building is to be completed this year. It will have a frontage on Superior avenue of 60 feet and extend back about 125 feet to the other new section, which was completed last year. The first story will be of granite and the five upper stories will be of terra cotta made to match the natural stone. It will make one of the finest buildings of its kind in the country, being the most up-to-date newspaper plant in the middle west.

The American Steel and Wire Company is to spend \$1,000,000 for a new furnace at its central plant this year. It will provide a good fire brick contract for some concern.

No less than five automobile garages are planned for this year on Euclid avenue. They will all be of brick, from present plans. Crowell & Sherman have been awarded the contract for the big one at Euclid avenue and East Seventy-first street, which is one of the largest.

A huge warehouse, costing \$1,000,000, is being planned for the flats district. Joel H. Fuller, who is president of the Stowe-Fuller Co., manufacturers of fire brick, with five plants in Ohio and adjoining states, is the head of the new concern. It is planned to erect a big building near the railroads in the flats and another structure on the upper level, facing Ontario street. A tunnel will then connect the two, freight being raised by means of large elevators from one level to the other.

A new manufacturing plant is to be built in Elyria, Ohio, for the American Pump Company by Architect O. P. Staph, of Cleveland. At present a new office and a factory building will be erected, other structures to follow as rapidly as possible. The factory, which will be of brick, will be of the saw-tooth variety. M. W. Kingsley is the engineer in charge.

Plans are being made by the new city administration to begin three new municipal projects on Cleveland day, July 22. One is the new city hall, another the new union depot, and the third is a new high-level viaduct across the Cuyahoga valley. The city hall is to cost \$2,600,000, and the depot over twice that sum. Both will be a part of the group plan.

BUCKEYE.

Definition of Clay.—Among different writers there exists quite a wide difference between the various names for clay. Some call it clay substance, others kaolin, often also china clay, and some writers speak of kaolinite. While each of these names has in reality its proper meaning, this should be studied closely before using them. Clay substance should only then be used when we speak of an analysis in which the results are obtained by the decomposition of sulphuric acid, and also in such cases as it is necessary to make a comparison between such analyses. China clay is the result of a decomposed granite and is usually a washed product. The word "china" is used in the connection that this clay was able to make the same kind of ware as was made in China, and is often also called porcelain. In France such clays are mostly called porcelain clays. Under "kaolin" we usually take the noncrystalline clay, and it is a name often used for all better classes of clays. Kaolinite is the crystal form of kaolin, and should only be used in that connection. Dr. J. W. Mellor, the author of this article, illustrates same with different microscopical enlargements of the different

kaolins and kaolinites, and the whole article is a very interesting one.—Tonindustrie, Z., No. 126, 1909.

Written for THE CLAY-WORKER.

POLYCHROME ARCHITECTURE FROM THE STAND-POINT OF THE CLAYWORKER.

BY H. C. MUELLER, TRENTON, N. J.

POLYCHROME OR "many colored" architecture, should furnish a very interesting topic to the clayworker, for the simple reason that burned clay combines in itself all the necessary requirements for it. Burned clay is, in fact, the only known building material which will, under all circumstances and conditions, retain its original color.

While the clayworker can only play a comparatively passive part in the selection of his product for building purposes, being subject to the directions and pleasures of the designer and architect, he may, nevertheless, take an active part by assisting the work in an experimental way, by suggesting color combinations, texture, etc., and by giving information about the limitations and possibilities of his materials.

Architects will, as a rule, be glad to co-operate with craftsmen who take an intelligent interest in their work, as the best results have always been obtained through the co-operation of the designer and conceiver of things and the man who had to do the work.

It stands to reason that a man who desires to approach an architect and offer his assistance must know what he is talking about, and it will, therefore, be necessary for the enterprising clayworker to take a more than casual interest in the artistic phase of his work.

Polychrome architecture is almost "as old as the hills," and burned clay has played a most conspicuous part in it from the very beginning. The oriental nations with their love of color have given us the grandest examples in this direction, and it is owing to their wonderful material that we are so well acquainted with the classical examples of polychrome architecture.

While the claim has been made that the Greeks used to color and stain their marbles in rich colors, we must be satisfied with the written records, as nearly all traces of such coloring have disappeared, but we can study the original enameled terra cottas, bricks and tile of the Assyrian and Babylonian period without making any allowance for their age, as they look today as fresh and brilliant as when they left the potter's kiln, thousands of years ago. Some of these classical examples of the potter's art have been buried in the ground for centuries, some have been exposed to the rays of the sun and the weather, but no attack of the elements has dimmed or marred their beauty.

The Persians, the Arabs, the Moors have all attained a high degree of perfection in their polychrome architecture. The beautiful mosques, tombs and palaces of these nations are admirable in every respect. The detail of the clay work is marvelous and fascinating, and many a traveler who stood before such a building, or walked through its halls, has exclaimed: "Why do we not create something of this character?"

Our period has not been very productive in an artistic sense. We thought perhaps a little too much of labor-saving machinery, trying to gain our goal by producing a great quantity of certain staple articles at the minimum of cost. The engineer has held the stage for a long time and the artist was pushed aside.

It is hardly conceivable that this condition will continue very much longer. We find already a strong current in the direction of polychrome architecture, which may also be called the architecture of the painter, while monochrome architecture may be styled the architecture of the sculptor.

Europe, especially Germany, is making great strides in the

application of color in buildings, constructed of terra cotta and brick, and lately great government buildings have been built of these materials. In our country the government and most of the states have erected but few public buildings of other materials than granite and marble, and it seems that the idea prevails that the brick building lacks a certain monumental character. This is folly, as an examination of the wonderful brickwork of the Netherlands especially will show.

Some experiments with colored bricks or terra cottas have not been successful, but the failure was, in every case, owing to the ignorance of the builder, who very frequently did not take into consideration that the porosity of some products would largely interfere with the stability of the color. It is positively necessary that the surface of burned clay be made impervious to moisture, especially if used in

city houses, where the atmosphere is pregnant with smoke and soot, if colors are to be retained. The glazed or enameled surface will give the desired protection.

It is true that the bright glittering glaze does not produce a desirable effect, but the so-called matt or faience glazes should be acceptable in every respect. They are strong, deep and yet mellow and soft in appearance; they have a most desirable texture and the palette is practically without limits.

The insertion of colored and ornamented friezes, panels, etc., is a comparatively easy matter, and tile or mosaics made for such purpose can readily be obtained. It will surely be advantageous to the clay industry if such endeavors receive encouragement. It will, furthermore, assist the brick-maker and brick builder to place his work on a higher artistic level without interfering with his interests.



The Gold-Plated Solid Silver Brick Costing \$500.00, Which was Placed in the World's Famous Brick-Paved Speedway by the Governor of Indiana at its Dedication.

Written for THE CLAY-WORKER.

BRICK-PAVED SPEEDWAY BEST TRACK IN THE WORLD.

PAVING BRICK won a notable victory during the past year, one that the paving world will not soon forget.

Against keen opposition vitrified brick stood the test and was selected for the material with which the two-mile-and-a-half track at Indianapolis, Ind., was to be paved. After the terrible fatalities of the great race meet held in the Hoosier metropolis in August, 1909, the owners and promoters were determined that nothing but the best would do for the resurfacing. The original surface was that of "taroid macadam." It proved so unsatisfactory in the first test (the motor meet) that an entire new surface had to be built. The taroid macadam showed little resistance to the pounding and grinding of the heavy motor wheels, and seven people were killed as the result of the poor condition of the surface of the track after only a brief period of racing. The papers over the country were filled with condemnation for automobile racing, little being known as to the real reason for the awful results. When the track was inspected the owners realized that the success of the speedway depended upon the abandonment of the first surface and the laying of one which would prove absolutely safe in the heretofore death-dealing events. All of the many paving representatives were asked to lay trial pavements at the speedway in order that the

very best material might be selected. Several trial pavements were laid and severe tests made, with the result that the vitrified brick showed the truth for its superiority, and there was little delay in fixing up the contract for 3,500,000 blocks and the immediate work of regrading the track and making ready for the laying.

The trial vitrified brick pavement was 100 feet long and built of Culver blocks, made by the Wabash Clay Company at Veedersburg, Ind., the same blocks which were subsequently adopted for paving the entire speedway. The pavement had only been laid two days, the cement having little time to set properly, when the speedway officials ordered tests made. The heavy racing machines sped over the trial pavements, subjecting it to the severest tests. The smell of burning rubber as the wheels of the anchored machine spun around on the blocks showed the effect of the trial on the machine, but the pavement was not affected in the least.

But little need we say of the trial tests, the awarding of the contracts and the building of the track, this we have thoroughly covered in the September and October issues of THE CLAY-WORKER. However, it would perhaps be fitting in reviewing this important work to give a condensed statement as to the construction before testing of the final testing and the present condition of the course.

The old surface of taroid macadam, which could not stand the severe tests made on it by the heavy machines traveling

at times at the rate of seventy miles an hour, was constructed as follows: The base fills were brought to grade, rolled with a fifteen-ton steam roller, depressions were refilled and the entire surface rerolled repeatedly until true and firm, a 2-inch layer of gravel spread on this and rolled and then covered with 2 inches of broken limestone (2-inch size), after which the whole surface was treated with two gallons to the square yard of "taroid H," followed with $\frac{1}{2}$ -inch size of crushed limestone filling up the voids of the coarser stone, the same being rolled with an eight-ton roller, treated again with eight-tenths of a gallon of "taroid L" to the square yard, all covered with $\frac{1}{2}$ -inch coat of crushed stone screenings and then thoroughly rolled.

The old surface just briefly described was made ready for a foundation for the brick pavement by adding sufficient crushed limestone to fill up all the ruts and depressions

up and continued along the straight away track. After the brick were thoroughly inspected and those regarded as objectionable removed, they were thoroughly rolled, all slight depressions ironed out, compacting the brick into, as well as compacting the sand cushion underneath, insuring the perfect cushion desired. When the various sections were made ready for the first coat of filler, no greater depressions could be found than a quarter of an inch in the length of a 12-foot straightedge in whatever direction it was placed. Expansion was provided for by placing a 1-inch board parallel with and adjacent to the curb, which remained in place until the track was in all other respects finished. The board was then withdrawn within twenty-four hours after the application of the cement filler and the crevice filled with a pitch filler.

The rigid rules of the National Association, even to the use of their prescribed mixing box, so shaped as to insure



A View of a Portion of the Completed Track of the Indianapolis Motor Speedway, Where All World's Records Are Expected to be Broken This Year.

caused by its use during the races and resurfacing with crushed limestone to the depth of $1\frac{1}{2}$ inches, thoroughly rolled to a uniform smooth surface, conforming to the grade of the finished track. Upon this foundation was placed a uniform 2-inch sand cushion, upon which the brick were laid. This sand cushion afforded a maximum relief from vibrations made by the impact incident to its use by automobiles or whatever travel it may be subjected to, this provision for the relief being so slight that no weight that is likely to come upon the pavement will crush the bond of the cement filler with which the interstices are completely filled. The brick were laid on this cushion face edge up, at right angles with the straight away track and continuing at right angles until their line intersected a line marking 45 degrees of the curve, dropping off a half brick at a time as the point was reached. From this line the brick were continued from a herring-bone joint for the remaining 45 degrees of the curve at this point, then the right angle courses were again taken

uniform mixing of cement filler in proper proportions of one to one sand and cement, were enforced throughout, as the best paving brick experts in the country were on hand to see that the work was properly done, and to assist the owners of the track in fulfilling their desires to have nothing but the best construction.

Mr. Will P. Blair, Secretary of the National Paving Brick Manufacturers' Association, virtually camped on the track and carefully guarded the work as it progressed. From start to finish, the work of construction was practically under the supervision of Engineer W. T. Blackburn, of Paris, Ill., who is one of the ablest experts in the employ of the National Association. He had several able assistants at the speedway, who did their full share in making the track the finest, safest, and, in the long run, the most economical pavement in the world.

The brick surface was completed the first week in Decem-

ber, with the exception of the place left for the insertion of the final brick, a gold-plated solid silver brick weighing fifty-two pounds and valued at \$500. All the speedway officials, brick experts and a crowd of enthusiastic autoists were present on December 17th to witness the ceremony of laying of this last brick in this pavement, and, incidentally, marking the last of a total of 3,500,000 brick.

Trial tests were made by several of the world's most famous automobile drivers December 17 and 18, with the result that several world's records were broken, although it was bitter cold and perhaps much better for a polar expedition than motor speeding. While these trials were few in number, the records established in such wintry weather point to the fact that the track is capable of almost unlimited speed under fair conditions. No one disputes the fact that the former surface of the course was unsatisfactory and very dangerous. The owners and promoters of the motor speedway have succeeded in their efforts to make a "sane and safe" track, for not a single accident occurred during the recent trials.

A popular motoring magazine published in one of its recent issues the following: "Eventually all automobile and motorcycle racing may be done on speedways similar to the Indianapolis course built of brick. Such a track seems a logical solution to the racing problem. The three elements that should enter into the construction of a racing course are: First, safety of the drivers and spectators; second, speed, and third, durability of the course. The Indianapolis Motor Speedway seems to have met all of these points in a most satisfactory manner in its reconstructed course."

If experience proves the extraordinary merits of brick for speedways, why not a certain solution for the highway?

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

A COMPARISON OF THE building operations in the Pacific northwest, which includes Puget Sound countries, the Inland Empire, and the northern Oregon sections reveals a remarkable increase over the year 1908. The Pacific northwest is building up at an increased pace, and before long the cities will be as large or even larger than any city in the middle west.

The increase of Seattle permits over 1908 was more than \$5,000,000. The total number of permits issued was 14,884, with a value of \$19,044,335, and is just about three times the volume of new buildings erected in 1907.

Portland issued about the same amount of permits, but the value of these permits was more than \$3,000,000 higher, showing a large increase in business blocks. The total amount of improvements was \$13,471,380, with 4,739 permits.

The third city in amounts of increase was Spokane, the headquarters for the Inland Empire. The permits for the year 1909 amounted to \$9,400,000, as against \$5,927,548 in 1908.

Tacoma, the second city in the Sound country, also showed a healthy increase over the year 1908. The gain was \$62,000,000. The total permits issued were 2,456, with a total value of \$4,087,274.

Of the cities in center Washington, North Yakima shows the heaviest increase. The new buildings erected amounted to a sum of \$996,740, which was a large increase over the previous year. Walla Walla shows an increase of 29 per cent. in building operations, the total value being \$551,790, with 680 permits. The increase is nearly \$130,000 over 1908.

Everett, Bellingham, Aberdeen, Centralia and other cities all show a good increase, and are evidence of the country getting more and more settled.

The general outlook for the brick business is good. In many localities small yards have been started and others already existing will be enlarged. Western Washington is watching with interest the erection of its second paving brick

plant, which is being erected by the Little Falls Fire Clay Company at Palmer. There has been some talk about a new sewer pipe plant in southern Washington, but nothing definite has developed. The old Gig Harbor yard will probably change hands, and will be remodeled and put into operation for next spring.

There is also a possibility that southern Washington will secure a pottery plant. Extensive clay beds have been discovered near Bingen, on the Columbia River, and the clay is now being tested by the pottery at Edmonton, Alberta. If these tests prove satisfactory the management of the Edmonton pottery has the intention of moving the entire plant to Bingen. The pottery now employs eighty-six men.

The Denny-Renton Clay and Coal Co., of Seattle, increased their capitalization from \$1,000,000 to \$2,500,000. They will extend their Renton and Taylor plants again next spring.

Henry Lohse, Sr., the president of the Lohse Brick Company, of Seattle, died early in December. Mr. Lohse was well up in years and one of the pioneers of the city.

The Dry Pressed Brick Company, of Spokane, will hold a special stockholders' meeting in January to vote upon the proposition of increasing the capitalization from \$100,000 to \$200,000. This company expects to make extensive improvements at their plant at Sand Point, Idaho.

The Northern Clay Company, of Auburn, will double the capacity of their plant in the near future. They will erect several new kilns and are now making the foundations for a new addition to their main building. This addition will be 100x40, and three stories high.

There has been some talk among the brickmakers of this section to revive the association of clay manufacturers which was in existence some five years ago. The Seattle brickmakers recently held a meeting in this connection, but nothing definite was agreed upon.

The Washington Brick, Lime and Sewer Pipe Company, of Spokane, has commenced the erection of their new sewer pipe plant, and will be able to turn out pipe early in the summer.

The McKenzie brick plant, in Bellingham, is now erecting their new buildings, and other Bellingham brickyards are putting in new dry kilns. The brick shortage in Bellingham is very pronounced, and some of the local work is held up on account of this brick shortage. The Steele & Steele Brick Co. are going to expand their plant on Vashion island. They will spend some \$30,000 in improvements, and will at once erect eight down-draft kilns and make repressed brick for the Seattle market.

Common brick has been ranging in price from \$5.50 to \$9.50 at the yards. Klinker brick has been selling throughout the year for \$11.50. Face brick prices were very steady all through the year, ranging from \$30 to \$40, while fire brick sold as low as \$22.50 for imported brick in early summer. The price is now \$28, and local brick is sold for that price. Paving brick sold all through the year for \$20, and repressed paving brick for building purposes, which early in the year sold for \$23, dropped on account of competition to \$15.

The Pacific Pottery Company, of Portland, which plant has been manufacturing exclusive stoneware for the last twelve years, has been incorporated and changed its name to the Pacific Stoneware Company, with Mr. M. S. Mann president. SIWASH.

The Meyenberg Terra Cotta and Brick Company has been incorporated at South Coffeyville, Okla., and has purchased a site of 125 acres, including extensive shale deposits. Brick buildings will be erected and machinery installed with a daily capacity of 150,000 building brick and 90,000 paving brick. Drain tile, terra cotta and fireproofing materials will also be manufactured. F. P. Meyenberg, 84 Washington street, Chicago, is president, John Duncan is vice-president, and George Pfleger is secretary.

WESTERN PENNSYLVANIA BRICK AND BUILDING NOTES.



NOTWITHSTANDING THE cold weather which we had in this part of the state during almost the entire month of December, there was practically no loss whatever reported in the brick and clayworking industry, at least as compared with the latter part of November and early in December. Brick manufacturers hereabouts have advised the writer that they have continued to receive many contracts, some of which are of considerable size and importance.

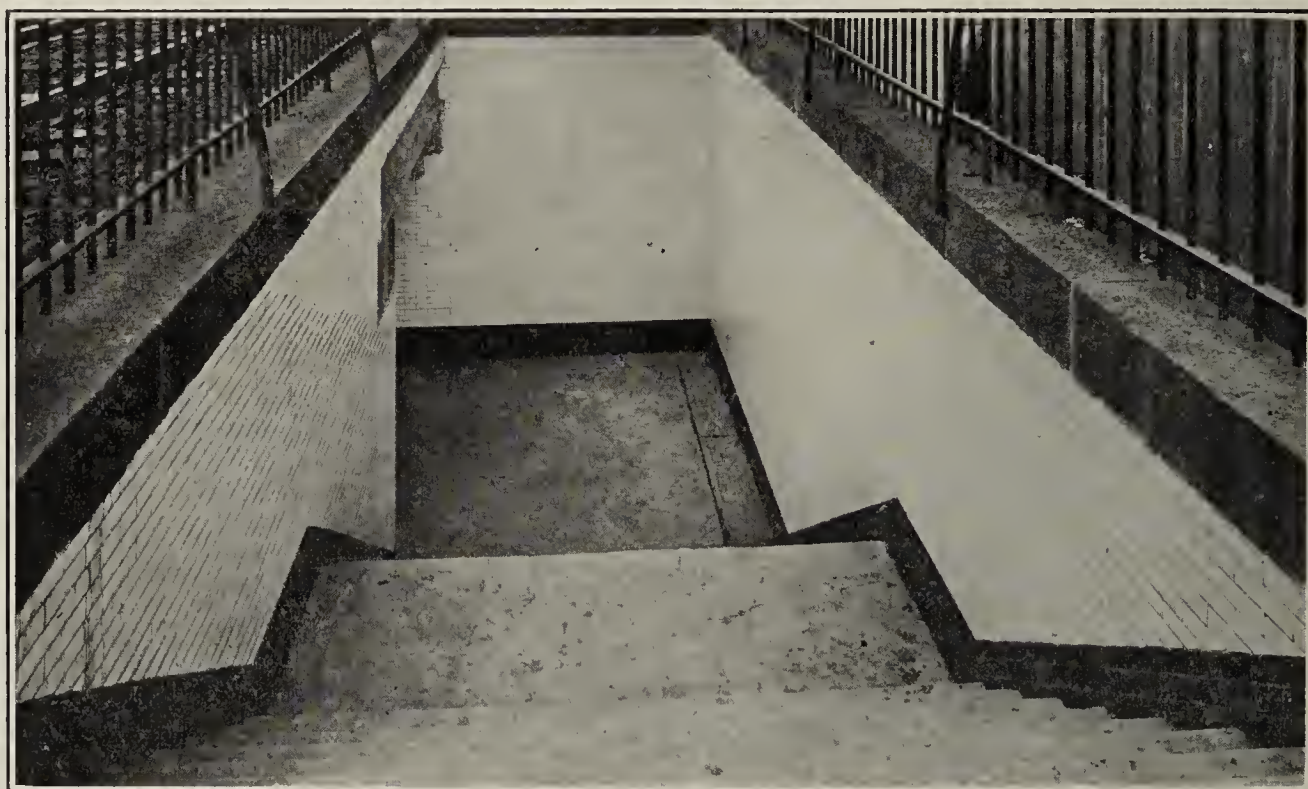
There have not been a great number of the orders received from this immediate section of the country that are to be shipped at once, but at the same time there are still a large number of contracts that have been placed which are from the south, and these contracts are for immediate shipment, so they are being made up at once. Included in the latter is quite a large amount of special shapes of refractory brick.

The local fireproofing plants are running steadily, and although not to their capacities, they are all busy, and are

times as possible without losing capacity by doing so. They are, therefore, contracting for large quantities of high-grade brick to be delivered at once. And this means that within a short time these same customers will commence to place orders for the extra or emergency linings for blast furnaces, stoves, cupolas, etc., that are usually carried in stock.

The demand for building brick of all kinds has fallen off, which was, of course, looked for, but this is only due to the cold weather. The building brick manufacturers generally see a busy spring and summer before them, and during the winter will lay up large stocks of standard 9-inch brick for building purposes, both common and pressed.

There is already considerable enthusiasm being shown by the many local brick manufacturers over the Twenty-fourth Annual Convention of the National Brick Manufacturers' Association the second week in February. This will be a big week for those interested in and identified with the clay industry, as the American Ceramic Society, the National Clay Machinery Association and the National Paving Brick Manufacturers' Association will also be in convention during the same week. Several local concerns engaged in the manufacture of brick, sewer pipe, etc., are already talking of arranging side trips and excursions through these plants, and



Entrance to Subway Tunnel Lined With Glass Veneered Brick.

turning out large quantities of finished product. The leading factor in this industry, which has its principal offices in this city, and which has several plants in the Pittsburgh district, has received several very good contracts from the southwest and from the south during December, as well as from some of the principal eastern cities.

Paving brick manufacturers have not had as large a total of business for the past months as during the several preceding months, as there is very little new business in paving brick and block being placed under contract at this time of the year. However, the plants are operating about as was reported a month ago, as there is still considerable business on hand which is to be ready to ship early in March.

The feature of the entire month has been the demand for the highest and also the medium grades of silica brick, blast furnace and stove shapes, and other classes of refractory materials. Plants making a specialty of this class of product are running to their capacity on very heavy demand. Iron and steel manufacturers have booked enough contract business already to see that they are going to be able to operate their plants to full capacity during the coming year, and they are making repairs wherever possible and at such

there is no doubt but that a number of such trips will also be arranged. In addition to these trips to the clayworking plants, several of the largest Pittsburgh manufacturing interests have decided to place their immense operations at the disposal of the entertainment committee, and the guests will be invited to inspect the greatest industrial workshops in the world.

There will be no end to the amusement offered in Pittsburgh during the week, and those who have never had an opportunity to visit the city and its wonderful industries of all kinds can not afford to miss such an opportunity under such favorable conditions.

The York Clay and Mining Company, of Nelsonville, Ohio, announces that the capital stock has been increased from \$16,000 to \$100,000. The company has had a very successful year and starts out with a large amount of business on its books. During the present year there will be a large number of improvements made at the works and mines near Nelsonville.

The Bricklayers' Supply and Construction Company, Johnstown, Pa., has been formed and incorporated under the laws of this state with an authorized capital stock issue of \$5,000.

The incorporators of the concern are Charles S. Slough, Thomas J. Harris, Edward T. Cooper and Edgar N. Robinson, all of Johnstown. The concern will engage in the manufacture and sale of tools, equipment, etc., for bricklayers.

The Walsh Dry Kiln Company, Pittsburg, has been incorporated under the laws of the State of Pennsylvania with an authorized capital stock issue of \$5,000, and will manufacture and install a patented dry kiln for brick plants and other industries using high temperatures in the baking or drying of their products. The incorporators of the new concern are James V. Walsh, Thomas A. Walsh and Morris Walsh, Jr., all well-known residents of the South Side, Pittsburg.

Glass Veneered Brick for Courts, Etc.

L. & R. Wister & Co., Philadelphia, Pa., and conducting a branch office at 508 Frick building, Pittsburg, have been appointed general sales agents for the sale of the product of the National Glass Brick Company. There has been an excellent demand for the product of this company created in the Pittsburg district, and a large number of them are being used. The brick is not of glass, however, as might be surmised from the name, but of cement, clay or other material. The exposed surface is then faced with glass, with a glass rib running through the center and acting as a binder and

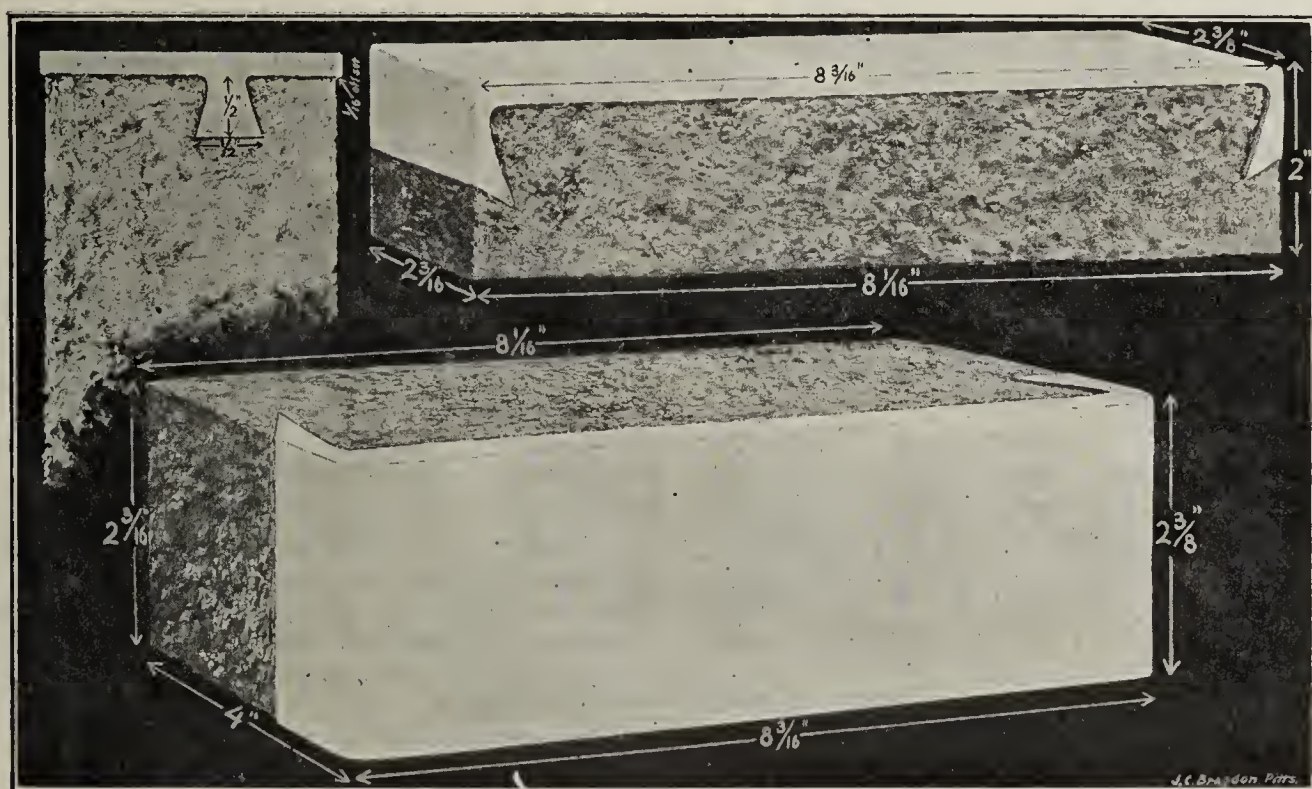
for its various and varied uses has at last been confirmed when the sale of the plant of the Barnes Brick Company, near New Brighton, Pa., was made the latter part of December to the Pennsylvania Lines West of Pittsburg. The plant occupies about three and a half acres along the Ohio river, and the price paid was about \$47,000. The plant, while an old one, is modern in equipment and in the best of repair, and capable of being operated to its capacity at any time. It has been impossible to learn just what the railroad company's plans regarding the use or operation of the plant are.

A. SMOKER.

NEW ELEVATING DEVICE FOR TILE MANUFACTURERS.

How to get tile from the lower floor of the factory, where they are usually made, up to the second and third floors, has been quite a question with many tilemakers, and after getting them up there, what was the best and most economical way to get them down again when ready to put in the kiln.

Some used a small endless belt or sprocket chain elevator with shelves, and did this much to their advantage, but only the smaller tile could be sent up in this way, and to bring them down by the same means was a slow operation



Method of Applying the Veneer of Glass to Brick.

also a reinforcement for the brick. The brick are being largely used in this district in lining the tunnels at railroad stations through which passengers pass in crossing from one side of the tracks to the other. The Pennsylvania Railroad Company has lined the tunnels at East Liberty, Pittsburg, with these brick, and the Pittsburg & Lake Erie Railroad Company has just awarded a contract which specified the use of this National glass brick in the tunnels at the end of the Smithfield street bridge terminal station, Pittsburg, and at the handsome new station which is to be built this spring at Beaver, Pa.

The United Fire Brick Company, with general offices in the Arrott building, Pittsburg, and operating three large fire brick plants in the immediate vicinity of Uniontown, Fayette county, Pa., announces that all of these plants are being operated to their capacities, and that there is also a large amount of advance business booked, which is sufficient to insure the steady operation of all three plants all spring. The company has recently booked some very good contracts for brick to be used in the construction of new coke ovens in the Pittsburg and Connellsville regions.

That the Pennsylvania Railroad Company has decided to enter the brick business in an effort to secure cheaper brick

and not satisfactory. Some slid them down a "V" trough, but they were more or less disfigured in their journey and many of them were broken.

No one in the clay machinery business built suitable elevators, and the clayworker was compelled to go out of his line and buy a regular freight elevator, which was usually high-priced.

The J. D. Fate Company, of Plymouth, Ohio, manufacturers of clayworking machinery, realizing the needs of the clayworker along this line, designed their elevators especially for the use of the tilemaker.

The first one is a platform elevator, very similar to the regular standard type of freight elevator, and is made to rapidly carry up one or two truck loads of tile or other ware. It is absolutely reliable and very easily operated, and the cost of installation is not very high.

For those who make large tile that are handled on pallets, this company designed a friction-drive elevator that could be placed so that when the big tile had been deposited on the pallet, it could be slid over a rack of rollers onto this elevator, the platform of which was part solid flooring and part rollers. After the tile had been deposited on the

elevator, by pulling a rope the friction machinery starts the car and it is automatically stopped at any floor desired. After the tile is removed, the car is again set in motion by the operator and descends again to the ground floor. It is so counterbalanced by weights that it does not drop with too much violence when the catch is released. In handling large tile with this elevator, it is not necessary to lift them at all, as they are taken off with a prong truck.

After having so easily and successfully gotten the tile or green ware upstairs, the question is how to best get the same down again to go to the kiln. The "V" trough not being entirely successful and the method of taking them up too slow for the return trip, the Fate Company designed what they call a gravity elevator or lowering device. The brake wheel and drum are cast together in one piece. The wheel is $27\frac{1}{2}$ inches in diameter with 4-inch face, and the drum is $25\frac{1}{2}$ inches in diameter with $4\frac{3}{4}$ -inch face, scored or grooved

for $\frac{1}{2}$ -inch cable, which is given one wrap around the drum to prevent slipping.

By means of an adjusting bracket the heavy brake band is attached to the brake bar or controlling lever, on which is an adjustable weight, and to the brake bar is attached a window sash cord for convenience of the operator. To operate this device, a man wheels on a loaded wheelbarrow and removes an empty one, then by pulling the sash cord, lets the car down to the first floor, where another man runs an empty wheelbarrow on the platform and removes the loaded one, when the car is returned to the upper floor.

The platform or car is 6 feet 6 inches wide, 7 feet 6 inches long, and from the floor of the car up to the head or cross beam is 6 feet 8 inches.

All of these elevators are well built and will be found very convenient in any tile factory, as well as money and labor savers. Cuts of elevators are shown on page 175.

AN ORGANIZED SALE OF AN ORGANIZED PRODUCT.*

By Geo. H. Emery, Des Moines, Iowa.

IN BEGINNING my remarks on "An Organized Sale of an Organized Product," I am going to tell you a story:

In Chicago, many years ago, there was a merchant who had a general store in which he sold everything from collar buttons to plough gear. He began his business when Chicago was just a little past the Fort Dearborn stage, and this kind of business was a winner. But the town grew very rapidly, and as railroad facilities were not what they are at present, he had a hard time to keep stock on hand. One day when he was out of about everything anybody seemed to want, a man walked in and asked for a pair of shoes. The merchant was out of shoes. His customer was a bit exasperated. "You must have had a run on shoes today," he said to the merchant. "Yes, I have," replied the merchant. "At least twenty people have been in here inquiring for shoes this morning." "Well, then," snapped back the disappointed customer, "I should think it would pay you to get rid of all this other truck you've got lying around on your shelves, that nobody wants, and get down to selling the one thing they do want."

After the customer departed, the merchant began thinking. He glanced around at the calico, nails, cheese, axes, hatchets, lamps, and all the various articles which he was carrying, with just enough margin of profit on all to enable him to carry them, and he began to think seriously of selling out everything else and carrying nothing but shoes—just specialize in shoes—giving people to understand he didn't sell tacks, cornmeal, hoes, jeans pants, nor anything but shoes, and just because of that he was bound to carry the best bargains in shoes in town. The idea grew, and the first of the year he sold out his old stock and put in a new stock of shoes. The largest retail shoe house in the west today, with a millionaire at its head, is the result.

Do you see the point? He specialized in shoes. Because he had only one product, he could devote all his time, energy and selling genius to perfecting the sale of that product. He did not dissipate his selling forces by attempting to distribute them over a wide area; he conserved them; he concentrated them all at one point, and the result of his concentrated effort was success—great, big, fabulous success.

It is my contention, based upon observations of the majority of brickmaking concerns in the central west, together with no small amount of experimenting on my account, that the most successful clayworker, the one who will have the largest balance on the right side of his profit and loss account at the end of a term of years, is the man who will decide on the manufacture of a specific line of goods, one for which his clay and plant is best adapted, and stick to it.

I tell you, gentlemen, this is an age of specializing. The men in all professions recognize it. The peculiar and strenuous requirements of modern life force specialization upon

us. It is so with the professions—art, literature, science. Lorenz is the greatest doctor of hip-joint disease in the world, but he does not claim to be an authority on diseases of the ear, eye, nose and throat. The world seeks his skill because he has specialized in a particular branch of surgery. And he can get whatever price he asks of the world; he doesn't have to cut prices.

It is so with writers, too. Joel Chandler Harris made a fortune writing dinky dialect stories for children. He didn't invade the realm of William Allen White or Victor Hugo. He knew what his specialty was, and specialized in it. Every great writer of both present and past, made his name in literature by keeping to a single "line."

Do you suppose that if Wilbur Wright had been tinkering with automobiles, railroad locomotives and wheelbarrows, at the same time he was working on his aeroplane, he would ever have worked out a perfect flying machine?

Without talking at length on the advantages of specialization in manufacture, I wish to cite the practical experience of one of the largest brickmaking concerns in the world. After having spent years in experimenting, and thousands of dollars in money, they have finally adopted the policy of making but one class of product on a single yard. They manufacture common bricks on a common brickyard with machinery and clay suitably adapted for it. They manufacture pressed brick on still another yard complete in itself. They manufacture enamel brick on an enamel brickyard; paving brick on a yard adapted for the purpose, and soft-mud sand molds on a yard by itself. In no case does this company attempt the manufacture of more than one kind of material on a single plant.

Last summer I had the pleasure of visiting the different plants at Brazil, Ind. I found one plant making nothing but building tile, one making conduits, one paving brick only, and two making plastic clay facing brick, where in years past each of these plants had made a variety of goods, which they sold at demoralized prices, and all lost more or less money.

It is specializing that counts, because it is concentrating all force and energy at a single point, and it is a principle of science that force so concentrated is more potent than when widely distributed.

Now, to be specific, take our own business—clay products. The majority of brickmaking concerns do not specialize in manufacture, neither have they an efficient selling system. The prevailing idea of the brickmaker is to manufacture an assortment of clay products because of the supposed advantage, that in case of a temporary falling off in demand for products of one kind, he might keep continually occupied. I can cite you more than one plant which has attempted to make common brick, paving brick, drain tile, building blocks, and even pressed brick and pottery.

If your plant is best adapted to the manufacture of facing

brick, make facing brick; if it is best adapted to common brick, do not dabble in the facing brick business, but make common brick; if you have a paving clay and are so fortunately situated that you can manufacture a first-class paving brick, why waste time and money filling up your yards with common brick, drain tile, facing brick and building blocks? There is no selling organization in the world than can take this conglomerate mass of material and sell it to an advantage.

I believe that every manufacturer present will echo my complaint when I say that we are not making the profit on our products to which we are justly entitled, because of the existing conditions; because the manufacturing capacities, the selling energies, must needs be distributed over the several products. We do not specialize in manufacture of any single product because we are afraid of each other's competition, and because of this we are all losing money. It's like the merchant with the shoes.

In an article as brief as this must be, it is, of course, impossible to discuss the broad, general question of methods of selling. Again, each business has its own peculiarities which make it necessary to apply special methods. At the same time, I wish to emphasize the necessity, if you propose making a profit from the manufacture of clay products, of selling your product at the top-notch price.

It costs us just as much to make building tile or pressed brick as it did ten years ago. In fact, the cost is greater. The cost of living, as of all other commodities, has increased. Has the cost of clay products increased? No. Why? Because of the lack of organization among the manufacturers. The slogan has been, "Any price to make a sale," instead of "The right price or no sale." We have steadily persisted in cutting our profits until the time is almost here when they can stand no more cutting. The situation presents a serious aspect.

I can cite you towns represented in this association where the local manufacturers are selling common brick at \$7.50 per thousand, delivered on the job, deliberately cutting their own profits when they well know that common brick could not be put on board cars at their station for less than \$7.00 per thousand, exclusive of the haul, thereby losing \$1.00 per thousand on their year's output. I can cite you other manufacturers who are shipping bricks, blocks and drain tile into competitive towns, paying the freight thereon, and underbidding the local manufacturers at these points.

Giving away goods does not constitute salesmanship, nor does selling them at the least possible profit inure to large dividends at the end of the season's business. Any mutton-head can cut the price, but it requires a salesman to keep prices up, or increase them.

With only one article on the market, with a single selling campaign to map out, we manufacturers could afford to spend more money, devote more time personally to our campaign, and keep more closely in touch with the actual methods and progress of our men in the field. We would not have a half a dozen selling talks to prepare; we would need to prepare only one. We could study the market as it relates to one product much more thoroughly and comprehensively than we can its relation to a half-dozen. This can not be questioned.

Granting that the manufacturer has decided to make a specific class of goods, he would be able to give the consumer a better product, because he could properly adapt his plant to meet the special requirements. This would give the salesmen a tremendous talking point. They could then talk quality instead of price, and that is the basis of the science of salesmanship.

Again, in order that you should get the best possible prices for your material, it is necessary that you give individuality to your product which will mark it from all other competitors. If you are manufacturing drain tile, make a distinct kind of drain tile. If building tile, make a specific kind of building tile; if brick make your own particular kind of brick.

The modern manufacturer who stamps his name upon the

bricks from the kiln is but imitating the brickmakers of six thousand years ago. The earliest known mark which appears upon the surface of the ancient brick was made by pressing the end of the thumb, or of a round stick, into the soft clay.

Every architect in the United States knows who makes "Hydraulic Bricks." That "Tapestry Brick" is the trade-mark of Fiske & Co., of New York, is well known to builders, and those of you who are familiar with their product know that "Tapestry Brick" are the commonest kind of common brick and are being sold at fancy prices because of Fiske & Co.'s extensive advertising and ability to sell them.

There isn't a brickmaker in this room who does not know who makes "Iron Clay Brick," "Tiffany Enamels," or "Flint Paving Brick," and it is rapidly becoming known that "Terra Cotta Brick" is the exclusive product of the Des Moines Clay Manufacturing Company.

As a man without some originality is a nobody, so the manufactured article without a distinctiveness has no standing in the eyes of the buyer; therefore, I say, put a name on your wares, a trade-mark, if you please, and while it is always desirable to protect such trade name by registration or patent, this is not necessary because the law will protect you in the use of it, as against unfair competition.

Having decided on a suitable trade name for your wares, its distinction should be hammered into the prospective buyers through well-directed advertising, carefully-worded letters, and, where possible, personal representation. Show your customers that they are getting the best to be had for their purpose. That is talking quality. It is the only kind of an argument that demonstrates ability as a salesman. It is the only one that is scientific. It is the only one necessary for the sale of an organized product, and it will bring the right price every time.

OF INTEREST TO ROOFING TILE MANUFACTURERS.

Messrs. Chas. Stolp and W. T. Wiederhold, both connected with the Ludowici-Celadon Co., have resigned their positions and have started a ceramic engineering office with a specialty of roofing tile manufacturing. At the same time they are ready to remodel brickyards, put them, if necessary, on a paying basis, and if extensions are contemplated, make drawings and specifications for same.

Mr. Stolp has a very wide experience in all things pertaining to the manufacture of roofing tile and brick. He brought this experience with him from Europe; he was connected with the Ludowici-Celadon Co. for about seventeen years as their superintendent at the Chicago Heights factory, and as their general superintendent.

Mr. Wiederhold has held for about seven years the position of superintendent at their Dixie and Chicago Heights plants. Both gentlemen are practical and have shown this in helping to build up the business of the Ludowici-Celadon Co. They are very much convinced that roofing tile in a few years will be the most conspicuous roof in America, and that it will open up an entirely new field for the American clayworker. This conviction is based on the fact that in sixteen years, from no use of roofing tile, the Ludowici-Celadon combinations are making at the present time on an average of 12,000 squares of tile per month and there is a demand for more, but facilities and factories to make them are lacking.

CONNEAUT SHOVEL COMPANY TO BUILD NEW PLANT.

At a meeting of the stockholders of the Conneaut Shovel Company, held on January 7th, G. W. Benton was re-elected general manager, secretary and treasurer, and it was decided to start rebuilding with brick immediately, and to build a much larger plant than before, and put in a line of strap back shovels as well as the specialties formerly manufactured.

Sufficient capital to rebuild was subscribed by the stockholders at this meeting, and they expect to have, when completed, one of the finest shovel plants in the country, and one that is as near fireproof as can be made. They will be in the market for a line of presses, shafting, etc., immediately, and expect to be running within thirty days.

*Read before the Iowa Brick and Tile Association, held in Des Moines, Iowa, January 12, 1910.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



HERE IS ONLY one brickyard in the city of Toledo manufacturing brick at the present time, and that is the Collinwood Brick Company. Other plants which operated until recently have all closed down for the season's repairs, and will probably remain quiet for six weeks or two months. Reports from the various yards show that there is a fair sprinkling of winter business, and some say that there has been a live outside demand for building brick. Stocks are not large and while there is enough on hand to meet all the requirements of the winter months, with a few left over to open the spring trade, it is certain that manufacturers will start early and operate heavily on the strength of a heavy demand from early spring builders. Prices continue to be very satisfactory, the better grades ranging all the way from \$6.50 to \$7.25. The records of the various concerns show the past year's business to have met all earlier anticipations, especially in point of volume, although prices much of the time were somewhat demoralized, and this has reflected unfavorably upon the showing made by the records. For the most part, however, the checking up of the books has placed the balances on the right side of the ledger, and manufacturers and dealers express themselves as well contented with the outcome.

Building operations in the city of Toledo show a decided gain in 1909 over the preceding year. A total of 1,309 permits were issued for new buildings, with an estimated valuation of \$3,034,108, as compared with 1,178 permits the preceding year of an estimated value of \$2,092,873, or a gain in the value of new buildings approximating \$1,000,000. Just at the present time the call for building brick is not so heavy, but there is considerable figuring and already many important contracts have been assured for the early spring. Among these are a number of large business blocks and factory structures, which will furnish a market for many thousands of building brick.

Present indications point to a large amount of street improvements and sewers in the city of Toledo during the coming year. The city now has 182 miles of paved streets, according to the report of the Chief Engineer, of which 11.45 miles were added during 1909, at a total cost of \$309,018.44. Of the street paving in this city 108.55 miles are of brick, 23.13 miles of Medina block, 14.09 miles of macadam, 17.05 miles of sheet asphalt, 10.39 miles of asphalt block, 6.31 miles of creosoted wood block, and 1.53 miles of bitulithic paving. Sewer improvements during the past year fell considerably below those of 1908. The total amount expended last year for this purpose was \$54,323, as against \$170,000 expended the preceding year.

A new industry, under the name of the United Tile, Marble and Terrazzo Company, has recently been established in the city of Toledo. The concern has offices in the St. Clair building and a well-equipped plant now occupying the site of the old Toledo Licorice factory, on the Michigan Central Railway. It already has several large jobs under way and reports an immense business outlook for the future. The new officials of the company are: President, A. J. LaCerno, who is also general manager; secretary and treasurer, A. J. Whiteford, and counsel, F. B. Kimball. Mr. Whiteford, the secretary, also represents the Ohio Builders' Supply Company in Toledo, having lived in this city for twenty-nine years. He was formerly secretary of the National Lime Manufacturing Association.

Work is progressing rapidly on Toledo's new half-million dollar post office, and the contractors declare that the structure will be completed and ready to turn over to the govern-

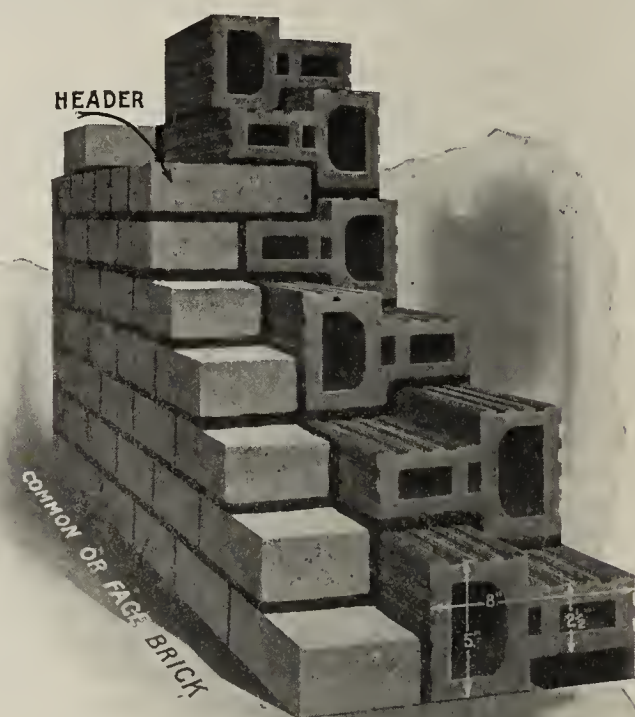
ment some time before December, 1910. S. J. Pickett, of Toledo, has the brick contract, as well as the granite and concrete work.

The following contracts were recently awarded for street paving in the city of Toledo, Ohio: Thomas J. Kelly, for paving Avondale, between Elizabeth and Halley streets, approximately \$10,990; Garrigan Brothers, portions of South Main street, between Nevada and Leonard, at \$4,442.50.

After having awarded the contract for paving Columbus street with "Carbovia," to Garrigan Brothers, the Board of Public Service recently rescinded its action and relet the contract to Tansey & Watters, the paving to be brick.

The city of Defiance, Ohio, will add three blocks of brick paving early in the spring on Fifth street. Legislation is now under way.

That brick is the favorite paving material in Toledo is not only shown by the large percentage of brick paving, but was recently emphasized upon investigation in a contract to be awarded. After having awarded the contract for paving with Westrumite, such a bitter howl went up that a canvass of property owners on the street was made to determine their wishes. Of these owners, out of a total of 3,562 feet front-



Section of a Moisture and Sound-Proof Wall.

age, 2,751 feet were owned by persons preferring the brick pavement. The result was that the Board of Public Service rescinded its former contract and the street known as Avondale avenue will be paved by Thomas J. Kelley with brick at a cost of \$10,090.

T. O. D.

THE QUEISSER-BLISS CO.

The Queisser-Bliss Co., Cleveland, Ohio, announce that they have taken over the business of the Hunt-Queisser-Bliss Co., Mr. Wm. H. Hunt (who has recently accepted the presidency of the Cleveland Life Insurance Company) retiring therefrom, his interest and good will having been acquired by the new company.

It is the purpose of the company, as formerly, to continue to serve the trade with the best obtainable in bricks, builders' supplies and high-grade building specialties.

The officers of the new company are as follows: R. L. Queisser, president and manager; C. A. Bliss, vice-president and treasurer, and E. F. Hauserman, secretary. In connection with the announcement, Mr. Hunt writes as follows:

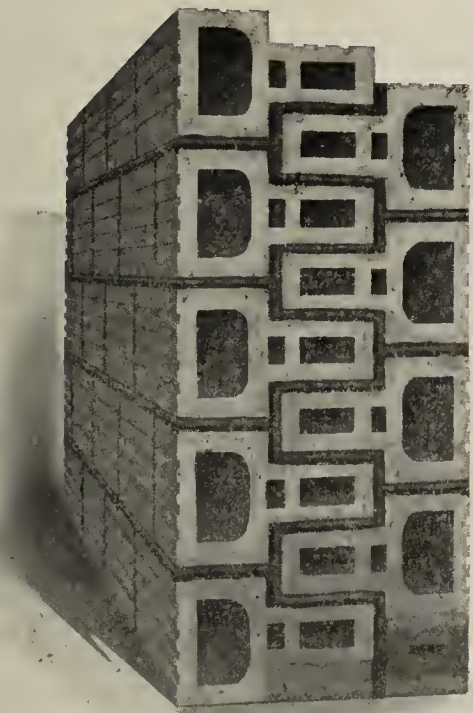
"Having sold my entire interests in the Hunt-Queisser-Bliss Co. to my former associates, Messrs. R. L. Queisser, C. A. Bliss and E. F. Hauserman, thus severing active con-

nection with the brick and builders' supply business, with which I have been connected for many years, I wish to thank the architects, contractors, manufacturers and dealers who have so generously evidenced their good will in my former connection, and to bespeak for the new organization, the Queisser-Bliss Co., your continued good will and patronage."

THE DENISON INTERLOCKING HOLLOW BRICK.

IN THIS WONDERFUL age, an age which is the most important in the history of the world, an age in which we have experienced most astonishing evolutions in material things, changes which were unbelievable a half century ago, and an age which is proving that the most unexpected inventions are apt to be made and conditions in life made better and more enduring, we find the building trades at their zenith, with the burnt clay products the most popular of all building materials.

Burnt clay products in the past have been considered more expensive than wood and the perishable materials, but have always been considered the most durable and sanitary. But today we find the clay product manufacturers producing



Twelve-Inch Wall, Made with Denison Interlocking Block.

materials which are high in quality, but meet the requirements of the average buyer. The inventions in the hollow clay ware field have worked wonders in the building trades. Immense walls and floors can be built of this material at the same cost as wood and prepared materials, and possessing unusual strength and durability.

Of the many types of burnt clay hollow ware for wall construction, that of the Denison interlocking brick, made by the Ohio Clay Company, of Cleveland, Ohio, is well recognized for its high qualities and adaptabilities. Their product is a special type of hollow ware, and as shown in the accompanying illustrations, can readily and easily be used in building not only the cheaper grades of homes and residences, but the large commercial buildings wherein great strength is demanded. Then, too, walls built of these materials can be made thicker and erected more rapidly than those of solid brick or stone.

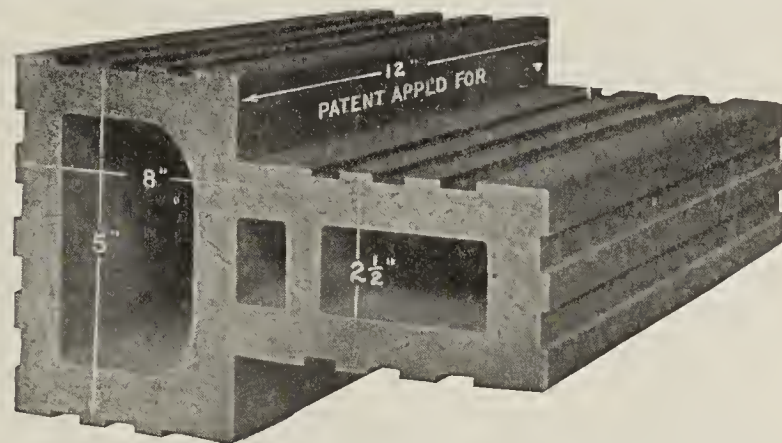
The material in Denison interlocking brick for wall construction is well adapted to "stucco" houses; walls faced with common or facing brick, foundations, partitions, etc. The question of the carrying capacity of hollow shale block was thoroughly investigated at Cleveland, Ohio, some time since by a commission consisting of the Osborne Engineer-

ing Company, Voice Engineering Company, and Professor Dukes, of Case School of Applied Science. Upon their report the building code of Cleveland was so amended as to admit of their being loaded 200 pounds per square inch of available section. This applied to the interlocking brick prevents it being loaded to over five tons per square foot of wall area. Abundantly safe, since their actual carrying capacity exceeds this many times over.

Over 100 tons per square foot was applied in the Case school tests to the Denison interlocking brick. This phenomenal strength is accounted for by the fact that ninety tons pressure is required to mold each interlocking brick, and the additional fact that they are made of nearly vitrified shale clay. Mortar and plaster adheres to dense, hard-burned clay ware better than to any other building material.

There is a 25 to 50 per cent. saving in the laying-up cost of walls made with this material realized in the use of this material when compared with solid brick walls. This was demonstrated in over ninety buildings erected in Cleveland in 1908.

The use of the interlocking brick with brick veneering makes the wall soundproof and moistureproof at a smaller cost, and the home is found to be warm in winter and cool in summer. To this should be added the fact that the structure is thus made absolutely fireproof. What more could one ask for his money. Specimens of these interlocking hollow brick will be exhibited at the N. B. M. A. Convention at



The Denison Interlocking Block Made by Ohio Clay Co.

Pittsburg, February 7th to 12th, and representatives of the Ohio Clay Company (see ad on page 147) will be in attendance to give the delegates any information desired relative to same.

NEW SEWER PIPE PLANT NEAR CLEVELAND.

Plans were announced at Cleveland during the past month of the formation of a big company, headed by H. A. Robinson, of Akron, which has purchased fifty-four acres at Mill Creek, just outside of Cleveland, where a huge sewer pipe plant is to be located, said to be the largest of its kind in the world.

The property has excellent railroad connections and contains one of the finest shale banks in Ohio, particularly adapted to the manufacture of sewer pipe. The sum of \$100,000 was paid for the land alone. Mr. Robinson's associates are mainly Cleveland and Akron men, but it is understood that the project is also backed by eastern capitalists. About \$750,000 will be required for the land, buildings and machinery, and the plant, when in operation, will give employment to 700 men.

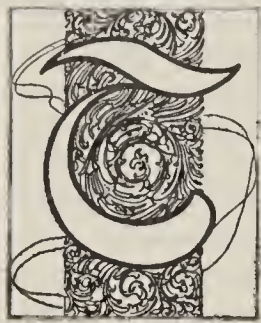
The clay deposit proves both by actual test and also by chemical analysis to be the best for the manufacture of sewer pipe and similar products in this section of the United States, according to analysis made by Case School of Applied Science.

Adjoining the tract of land is the property of the Cleve-

land Brick and Clay Company, which contains the same character of clay. This company has for several years been engaged in the manufacture of vitrified paving brick of superior quality.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



THE BIG TOPIC of interest with Wisconsin producers of clay products just at the present time is the coming tenth annual convention of the Wisconsin Clay Manufacturers' Association, which will be held in Milwaukee February 23, 24 and 25. Headquarters will be at the St. Charles hotel, and it is expected that at least 300 brick and tile manufacturers from all parts of the state will be in

attendance.

Mutual fire insurance and greater publicity for clayworking industries will be among the leading subjects that will be considered at the coming meeting. Plans for the formation of an insurance organization are expected to evolve into something definite, as the matter has been before the association for some time and was thoroughly discussed at the last convention.

Prof. Albert V. Bleininger, former president of the American Ceramic Society, will give an illustrated lecture on processes of preparing clays and methods of burning them. Prof. Bleininger is now in charge of the clay testing laboratories of the United States Geological Survey at Pittsburg, and manufacturers are looking forward with especial interest to the presentation of his paper.

Of the \$817,329.83 expended last year in Milwaukee for permanent street work, the sum of \$180,728.08 was invested in brick pavements. This represents the laying of 92,684 yards of pavement, a figure which is decidedly larger than that of a year ago. Manufacturers are confident that the year 1910 will see a still greater amount of brick paving done. Sentiment seems to be steadily growing in favor of the substantial brick pavement over the asphalt, which in so many cases has proven unsatisfactory in Milwaukee.

Even at this early stage of the season there is every indication that the coming building season in Milwaukee will exceed all previous records. Contractors, architects and manufacturers alike are predicting that 1910 will be one long period of prosperity, and that one of the brightest features will be the big amount of building that will be carried on. If the past year can be taken as a criterion, as brick manufacturers are confident that it can be, the demand for brick will show a big increase. It was a noticeable fact that last year the majority of manufacturing plants and additions were constructed of brick. Brick plants passed through one of the busiest years in their history; at no time were brickyards full of surplus stock.

Indications are that the pottery clay beds near Plum City, Wis., will be made good use of next year. Three experts from Red Wing, Minn., recently inspected the beds and expressed themselves as well satisfied with the outlook. The experts were representatives of the Red Wing Pottery Company, and they are considering the proposition of either establishing a pottery at Plum City or shipping the clay to the pottery at Red Wing.

The opening of spring will see active steps taken at Platteville, Wis., for the paving with brick of Main street from Court street to Water street. Estimates of cost have been made and all arrangements have been completed. Brick was chosen as it was thought to be best adapted for the streets of Platteville.

The new plant of the Columbia Silica Brick Company at Pacific, near Portage, Wis., is fast nearing completion. The

building, which will take the place of the structure destroyed by fire last October, is strictly fireproof. The walls, which were formerly built of concrete, are now of brick, manufactured by the company, an indication of the company's confidence in its own product. The interior construction is of cement and steel. The building is 100x100 feet, and will be equipped with the very latest in machinery. The company is meeting with a heavy business in the sale of its brick.

Manager G. W. Kennedy, of the Clay Products Company, of Manitowoc, Wis., has been notified that the product of his company will be used in the construction of the new \$100,000 postoffice building that will be erected at Manitowoc this year. An order for 450,000 brick will be placed with the Manitowoc company at once by the Majestic Construction Company, of Milwaukee, the contractors for the new government building.

Rudolph Bronson, connected with the Hydraulic Pressed Brick Company, of Minneapolis, Minn., recently visited at his former home at Stevens Point, Wis.

James Cape & Sons, of Racine, Wis., have been awarded a \$20,000 paving contract at Winnetka, a suburb of Chicago, the material to be brick on concrete foundation. The Racine contractors have been fortunate in landing several important contracts in the vicinity.

A. BADGER.

HORSEHEADS AND ELMIRA BRICK COMPANIES CONSOLIDATE.

The stockholders of the Horseheads (N. Y.) Brick Co. and the Elmira (N. Y.) Shale Brick Co. met recently in the offices of the Horseheads company and voted that the two concerns be consolidated. The proposition was put to the stockholders, and it was the unanimous opinion that the action of merging the two companies would be better for all concerned and brighten the future prospects of both companies. The new company will be known as the Consolidated Brick Company. Both the Elmira and Horseheads plants will be maintained in the future, and there will be little change in the methods of doing business. The principal thing accomplished by the consolidation was to make the interests of the two concerns the same. The Horseheads plant was owned entirely by Mr. R. G. Eisenhart, and he owned the controlling interest in the Elmira plant. Both plants will be rebuilt and equipped throughout with modern machinery and appliances, and will do business on a larger scale than in the past.

THE ELWOOD BRICK PRESS.

"There is nothing new under the sun," but change and improvement of the old things is taking place continually, and nowhere more noticeably than in brick machinery, where improvement has been more marked in the last ten years than in any other line, with the possible exception of the electrical.

On page 9 of this issue will be seen the 1910 model of the Elwood brick press, made and sold by the Chicago Brick Machinery Company.

Our genial friend, Mr. John J. Moroney, president of the above company, waxes enthusiastically eloquent when discoursing on the many points of excellence about this machine.

The hinged mold table and two interchangeable mold boxes make it possible to change the molds in less than fifteen minutes on the yard, while the two master-gears absorbing the pressing strain equally, make a machine that exerts its tremendous pressure easily and smoothly, without undue wear, shock or back-lash.

On some of the most refractory clays in the country this machine has done wonderful work, making both high-grade face brick and fire brick.

If you are contemplating a new dry press, a line to Mr. Moroney will give you the benefit of his twenty years of experience in this business.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

King of Button-Holers Off for Sunny Italy.

DEAR RANDALL:

I sail for Italy, January 29th, with my daughter Sylvia, and am head over heels getting ready. I am sorry to miss the convention, and hope you will give my regards to all.

Hastily yours,

Chicago, Ill.

W. D. GATES.

Wants a Practical Potter With Small Capital.

PUBLISHERS THE CLAY-WORKER:

Enclosed find subscription to THE CLAY-WORKER. The pottery plant here has been purchased by several of the stockholders, and we are now on the lookout for a practical pottery man to invest with us. The plant is modern and up-to-date and in first-class condition. We have an unlimited supply of potter's clay and good coal. The plant is located near the city limits.

Roodhouse, Ill.

C. W. PAYNE.

Clay-Worker Read With Interest and Profit.

Editor THE CLAY-WORKER:

I enclose check for \$2, covering my subscription to THE CLAY-WORKER. I look forward with pleasure to the receipt of each issue of your valuable paper, which is always read with interest and profit, and I know of no suggestions to offer to increase its value, as all matters seem to be so fully covered by men competent to handle them.

I am glad that Pittsburg has been selected as our next meeting place, and while I voted for other points, I think your conclusion a most happy one, and hope that I may have the pleasure of seeing you there next month.

With kind personal regards, I am,

Yours very truly,

Columbus, Ga.

GEO. O. BERRY.

Seen in New Jersey.

Editor THE CLAY-WORKER:

According to figures recently compiled, Newark stands fourth in the list of American cities in the increase of building operations, with percentage of 95 as compared with the previous year. Paterson is the only other New Jersey city that is given a place, with a percentage of 24. In Bergen county, which is bordered by the Hudson river, and is easily accessible from New York, whole towns have been constructed within the past few years. Populous villages and boroughs exist where but a few years ago were pastures, and, according to the views of those in position to understand the trend of events, this growth is but an indication of what may be expected in the coming few years. While not all the houses which have recently been constructed in this rapidly growing section have been brick, they have constituted a considerable proportion and all have used more or less brick somewhere about them. And as the growth of population and building continues, this use of brick will necessarily increase. It is, therefore, with more than ordinary complacency that the brickmaker looks upon this transformation of pasture lands into attractive home sites.

The Hackensack river is covered with about 14 inches of

ice, which is a damper upon brick shipments. Owing to the peculiar situation of the plants, it is practically impossible to send any brick away when the river is closed. Brick from the Little Ferry yards must be taken by boat across the river for shipment by train from Ridgefield Park, if they do not go down the river in schooners, and when the river is frozen these yards are inaccessible to all excepting those who want small quantities and can carry them away by team. So the winter is quiet along the Hackensack, and makers spend their time making ready for the coming season. Something like 100,000,000 brick were made along the Hackensack during the season just closed, and these are now practically all sold excepting a few left in the sheds when the season closed.

A. L. B.

Clay-Worker Dictionary a Fine Premium.

Editor THE CLAY-WORKER:

The dictionary received and I wish to thank you for your prompt attention.

I do not see how you can give such a valuable book as a premium, but am exceedingly well pleased with the investment.

I have been anxiously awaiting the first copy of THE CLAY-WORKER, and if you have not mailed my January number, please do not delay any longer.

If you should happen to hear of anyone in the south in need of a superintendent for a stiff-mud plant, would be glad to hear of it.

Yours very truly,

R. R. MILLS.

Mr. Hunt Severs Connection With Brick Business.

MY DEAR RANDALL:

I have today severed my connection with the Hunt, Queisser, Bliss Co., having sold my interest in the business to Queisser & Bliss, who have taken Mr. Hauserman into partnership with them. This, therefore, would seem to sever all active connection with the brick business, although I continue to be a stockholder of the Hydraulic Press Brick Company.

I have had so many happy associations during my many years of connection with the brick business that it seems for the moment rather unpleasant to feel that I am no longer actively a part of the brick fraternity.

I do not propose, however, losing touch with my good friends among the brickmakers, and you may expect me to attend the convention and preserve a generous measure of brick spirit, even though life insurance and some other matters are now claiming my attention.

With personal regards, believe me,

Very sincerely yours,

Cleveland, Ohio.

WM. H. HUNT.

Wants Suggestions on How to Make Stronger Brick.

Editor THE CLAY-WORKER:

Enclosed please find \$2.75 for subscription to THE CLAY-WORKER and the new Universal Dictionary.

You ask in your letter for suggestions for your valuable paper. I would like to have some of the older brickmakers give we younger ones their methods of manufacturing different kinds of clay, and the best machinery they find to work same. Also some hints on how to lighten labor by the use of various labor-saving devices. Such suggestions would be of great help to their fellow brickmakers.

We operate a Barron dryer. Our clay is sandy and our product is made on a soft-mud machine. Dries fairly well in the dryer, but when burned the brick are not so strong as when dried outside. We make thirty-two cars, holding 360 brick, three tiers of pallets ten high each day. Tempering room holds thirty-two cars, drying room forty cars. Could you suggest any means by which the brick would be stronger after being burned.

Wishing you the compliments of the season,

W. T. ATLEE.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



HE BRICK manufacturers and dealers of Kansas City; in fact, the handlers of all kinds of building materials, and the building contractors, have much to be proud of when they glance back over the business of the past year. This has been a year of steady work up to the first part of December, and the amount of material put into buildings here has been something enormous, and the figures show that half the money spent for buildings in the year was for residences, indicating the steady growth of the city. According to the Superintendent of Buildings, the aggregate of the building permits issued for the year 1909 reached \$13,368,783, or \$2,805,041 more than the total of the previous year, and as the fee for a building permit in this city depends upon the value of the building erected, it is safe to say that the real value of the buildings for which permits were issued will come nearer being \$15,000,000 than the figure above named. In the entire year there was no permit issued for a skyscraper. Nothing but the ordinary-sized business buildings and the residence and flat buildings was undertaken.

Owing to the fact that everything froze up so solid in December, which is a decidedly unusual condition in this section of the country, the permits for that month fell far short of those issued in the same month of 1908, less than half, in fact, the permits for December of the past year being valued at \$318,780, while those for the same month of 1908 were \$676,070. The entire month of December was just the right kind of weather for building operations a year ago, and the reverse was the case this winter. If the winter weather continues to be so severe there will be little done, but with an ordinary winter it may be expected that building operations will continue without abatement. There is plenty to do, plenty of buildings already under construction, and plenty ready to begin as soon as conditions are right in the way of weather.

The bank clearings for the past year also indicate a prosperous condition, which will surely make itself felt in a building way here, the increase in clearings over the previous year being 29 per cent., or nearly \$550,000,000.

Everything indicated the first of December that there was going to be a big shortage of brick during the winter, but things do not look that way at this time. While a good many of the plants have closed down, that was anticipated, and the work being shut down at the same time has taken the strain off the market, and it is possible that there will be little change in the price of common brick throughout the winter. A number of the Kansas gas belt plants have been making brick regularly, and they have been sending them to Kansas City with great regularity; in fact, so rapidly that it has kept the local dealers busy placing them on jobs where an extra handling could be avoided. The local yards have been shut down part of the time, except two of the yards of the Hydraulic Pressed Brick Company, which have run right along without interruption. The other two are running intermittently, and this has kept the production up to a point which is a little ahead of the demand, under present circumstances. Every good working day, however, a big pile of brick goes into the walls, and there is room for more from the plants.

The Pittsburg Vitrified Paving Brick Company reports

receiving a Christmas present not to its liking, as the plant in Pittsburg, Kans., where their fine paving blocks are produced, was burned early Christmas morning. The kilns were not damaged, and their machine shops and office building were also saved, so that they have the tools at hand with which to do much of the work before them. The new part of the drying room, which was built fireproof, was also saved, and the plant is to be rebuilt as nearly fireproof as possible. The insurance carried was not nearly enough to cover the damage, but work was at once started clearing up the debris, and it is hoped that the new plant will be ready for operation in from sixty to ninety days. The plans are to make it thoroughly modern, and the machines may be run by individual motors, thus making use of electricity and doing away with a considerable loss of power. The firm would like to inspect some plant now being operated in this manner. The fact that all the kilns were filled with brick at the time of the fire is going to be a big help to the company, as it will enable it to make shipments to contractors most in need of brick, and enable them to tide over the delay that must occur before the spring delivery can be made.

Arthur J. Eadie, who has just completed his studies in the Westport high school, has started in with his father in the Eadie Building Supply Company, and is going to learn the business of marketing brick.

The Kansas City Hydraulic Pressed Brick Company reports the sale of 100,000 of their Diamond pavers, to be used as face brick for the Commercial Club building in Wichita, Kans.

K. A. W.

GREETINGS FROM THE STEVENSON COMPANY.

"A HAPPY NEW YEAR and a prosperous one to all our clayworking boys and to our trade journals," is the greeting sent by the Stevenson Company, of Wells-ville, Ohio, builders of the machines that are guaranteed to make it a money-making, satisfaction-giving year to those who operate them intelligently, they claim. They say, "The year is big with promises, big with undertakings that will make for demand as well as supply. Are you all ready to meet the demand? Better get your old outfits renewed, your wornouts replaced with brand new before the rush comes, for you can't afford to lose time to repair when the flood is on. Build or repair now. It is to be a great year—every newspaper, every manufacturer, every dealer, every traveling salesman says so. Get ready."

Considering the condition of business generally in the clay trade throughout 1909, the Stevenson Company say they have little to complain of. The first half of the year was a continued push and crowd to fill orders, and had the contracts booked for new machinery all reached the stage of construction, the last half would likewise have been a drive. However, there were always plenty of orders and the works were kept steadily running. Aside from the several new plants furnished outright with their machinery during the year, already noted in THE CLAY-WORKER, the most important of which are the Weaver Clay and Coal Company, of Brazil, Ind.; the Cannelton Sewer Pipe Company, of Cannelton, Ind., and the Streator Clay Manufacturing Company, of Streator, Ill., their large family of wet and dry pans have been drawn upon heavily for installations here and there in the length and breadth of the land, sundry big sewer pipe presses have been erected, while pugmills, elevators, conveyers, dies and friction pulleys galore have been in demand. On dies and McComb's friction pulley particularly they had a tremendous run. They have several big sewer pipe presses

GIVE and TAKE is a Homely but Sensible Rule of Life. Those Who Apply it Literally in Convention Work Profit Most Thereby.

and wet and dry pans to furnish on orders already booked, with full assurance of duplicate orders later.

The Robinson Clay Product Company, of Akron, Ohio, has taken the lead in renewals during the year past, and purpose doing as much or more in the year before us. The American Sewer Pipe Company, probably Robinson's greatest rival, is not far behind them. They have renewed the pans in three or four works during 1909, and purpose making other renewals soon, well-substantiated rumor says.

E. S. McLain & Son, of Pittsburg, take the lead in improvements among the brickmakers who operate Stevenson's machinery exclusively, and they have installed considerable new money-makers and made extensive improvements and repairs in their long string of first-class plants during 1909, getting ready for 1910 rush, they say, though it has already overtaken them. There is no winter shutdown for them.

Among others who have installed Stevenson's machines, making ready for 1910 business, are Herman Busch, of Portage Station, Pa.; Mahler Brick Company, of St. Louis, Mo.; the Ohio Silica Company's offshoot at Oregon, Ill.; the Astoria Light, Heat and Power Company, of New York; Eureka Fire Brick Company, of Mt. Braddock, Pa.; Kittanning Clay Products Company, of Olean, N. Y.; Schyrock Hill Land Company, Indiana, Pa.; Westport Paving Brick Company, Westport, Md.; G. H. Heinisch, Portsmouth, Ohio; Royal Brick Company, Connellsville, Pa.; Brinkmann Terra Cotta Company, Perth Amboy, N. J., and the American Fire Brick Company, of Spokane, Wash. Extensive overhauls and renewals have been made by the East Ohio Sewer Pipe Company, of Irondale, Ohio; the Toronto Fire Clay Company, of Empire, Ohio; the National Fireproofing Company, of Revere, Mass; the Champion Brick Works, of Wellsville, Ohio; the Eldora Pipe and Tile Company, of Eldora, Iowa; the Savage Fire Brick Company, of Johnstown, Pa.; O. W. Weyer, of Lake View, N. Y.; J. M. Dunn, of Erie, Pa., and P. Bannon Sewer Pipe Company, of Louisville, Ky.

The Hammond Fire Brick Company, which burned out a month ago, has already received a new installment of machinery from the Stevenson Company to make good the fire's ravages, and expects soon to be making brick again.

WISCONSIN CLAY MANUFACTURERS' CONVENTION.

THE TENTH ANNUAL Convention of the Wisconsin Clay Manufacturers' Association will be held at Milwaukee, St. Charles hotel, on February 23d, 24th and 25th. Among the important special features of the convention will be the illustrated lectures and demonstrations with clays and clay products by Prof. A. V. Bleininger, of the clay testing laboratories of the United States Geological Survey, and the organization of a mutual fire insurance company among the members of the association.

The following is the preliminary program announced:

1. The Wisconsin market for brick and clay products.
2. The function of lime in clays. (Illustrated.)
3. The combustion of fuel and the application of heat in kilns.
4. The strength of clay products. (Illustrated.)
5. The great importance of tile drainage in Wisconsin.
6. Railway rates and their influence on the clay industries of Wisconsin.
7. Some factors determining the manufacture of brick by the soft-mud process.
8. The manufacture of brick and tile by the stiff-mud process.
9. The need of mutual fire insurance among the brick manufacturers.
10. Publicity and the clay industries.
11. Benefits of the state association.

Madison, Wis.

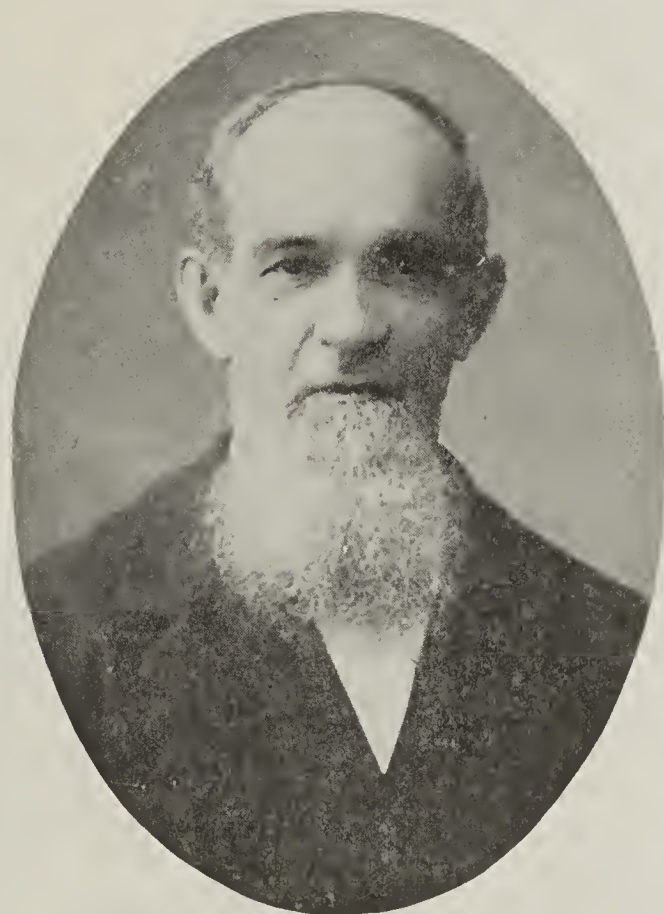
SAMUEL WEIDMAN, Secretary.

OBITUARY.

Death of George Potts, a Pioneer Clay Machinery Inventor.

George Potts, for many years identified with the manufacture of clayworking machinery, died at his home in Indianapolis, Ind., December 24. Mr. Potts was taken ill with asthma the 16th, and his aged wife contracted pneumonia a day or two afterward. Mrs. Potts died the 22d, and was laid to rest with her husband Christmas day, three days before they were to have celebrated their golden wedding, for which cards had been issued early in the month.

Mr. Potts was born near Harrisburg, Pa., December 11, 1836, and came to Indianapolis in 1872 to be superintendent of the machine shops of Chandler & Taylor, which position he held for twelve years, during which time he devoted his energies to improving drain tile machinery, inventing the well-known Eureka tile machine. After severing his connec-



The Late George Potts.

tion with this firm, he was superintendent of the Vinton Iron Works for four years, continuing the work of making improvements in tile machinery. In 1890 the firm of C. & A. Potts & Co. was organized and Mr. Potts was actively identified with them until his death, designing brick machinery and clayworking appliances. He was the father of Clayton and Albert Potts, and was well known to the brick manufacturers of the country, having attended a number of the national and state conventions. He was a gentleman of the old school and was always kindly and courteous in demeanor, thus gaining the confidence and good will of all who knew him.

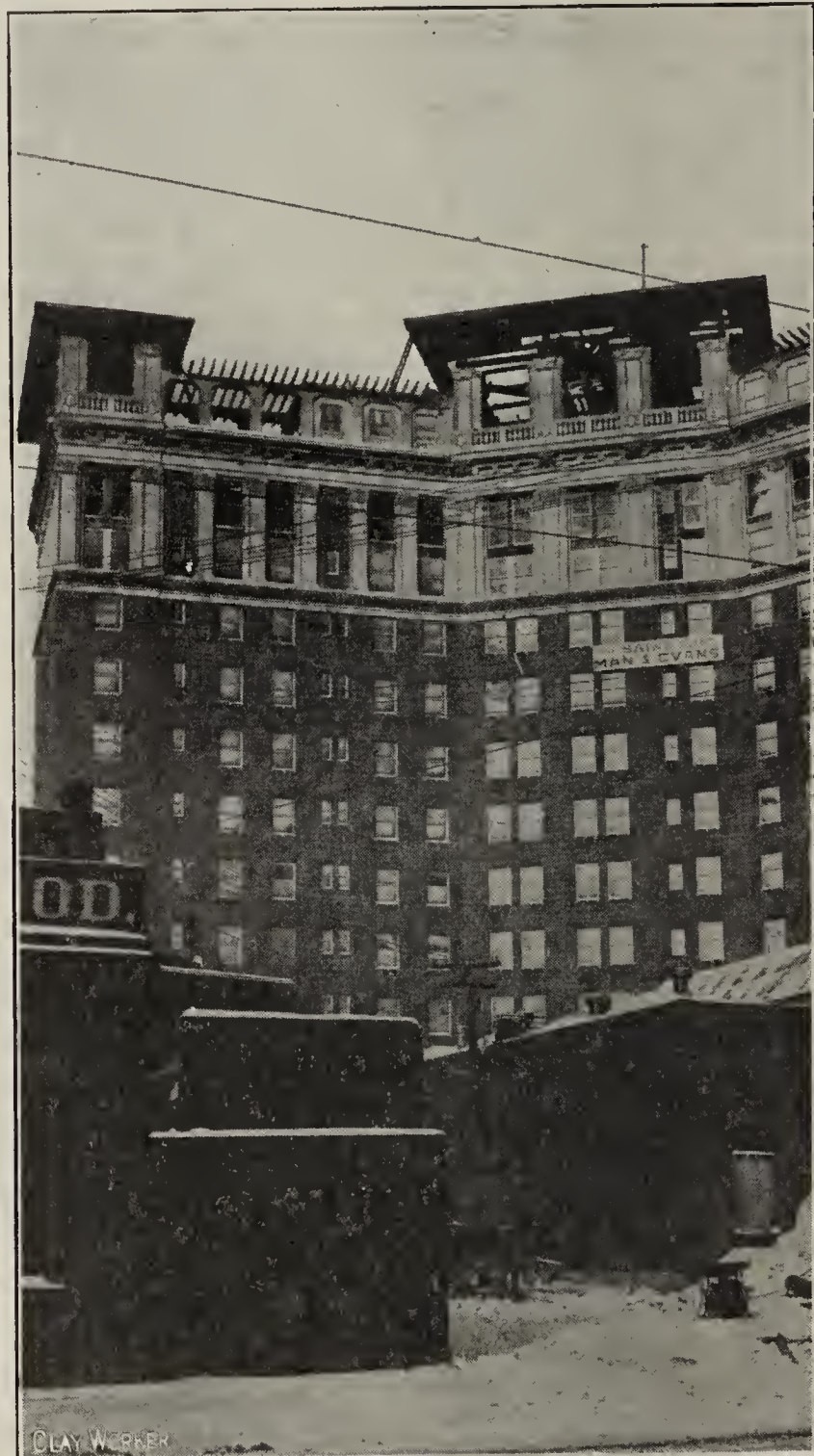
Do not make the mistake of thinking that money-saving machinery chances are for the big manufacturers only. There are just as many opportunities for the small factor in the business to improve his facilities by the installing of up-to-date machines and appliances, and generally its costs him less money comparatively than the larger man, so he can just as well afford it.

READ the Announcement Entire, Study the Program, Note the Subjects in Which You are Interested and Come to Pittsburg Feb. 7-12, Prepared to Give and Take.

KOCH'S IMPROVED INTERLOCKING BLOCKS.

A GAIN A FORWARD step has been taken in the ancient art of brickmaking. It has long been the impression of many engaged in the business that the only improvement possible in building brick lay in the color and the texture of the brick. It has been thought that in form, with immaterial changes in size to suit the fancy of the builder, the ordinary building brick was perfect. Now comes an inventive genius, Mr. Fritz Koch, president of the Twin City Brick Company, St. Paul, Minn., with a new form of hollow brick, or building block, which, it is claimed, is a decided

led him to experiment with hollow brick and block, and the result is shown in part on page 152 of this magazine. These patented block, Mr. Koch claims, are cheaper to make than brick. They are cheaper to lay than brick. When laid in the wall they present much the same appearance as ordinary brick, as the reader will see by the accompanying photograph of a St. Paul residence recently built of Koch hollow block. A wall built of these block has remarkable non-conductive qualities, and a structure built of same is consequently much warmer in the winter and much cooler in the summer than structures built in the ordinary way. A hollow block wall is also noiseproof, a feature of much im-



The St. Paul Hotel, in the Construction of Which Koch's Improved Interlocking Blocks Were Used.

improvement over the ordinary building brick for many forms of structural work.

Mr. Koch has for many years made a study of brick architecture, both in this country and abroad. As the product of the Twin City Brick Company fully proves, he is a master of the art of brickmaking. The face brick made by that company are admitted by connoisseurs to be of superior excellence. Mr. Koch has worked out color schemes by original processes of burning that are remarkable for beauty, and have made Twin City face brick conspicuous among the best brick the world has produced.

The same inventive genius which has enabled Mr. Koch to devise means of producing such high-class face brick, has

portance in the construction of modern flats and apartment houses.

The hollow brick has many advantages, both for the manufacturer and the user. Readers of *THE CLAY-WORKER* who are the least skeptical on these points, or who desire further information relative to the manufacture and use of these hollow brick, are requested to correspond with Mr. Koch, or, better still, meet him at the National Convention at Pittsburg, where he will show specimens of the block and demonstrate their practical and economical value.

Keep in close touch with the architects these days. Many of them have important plans in hand for next spring.

THE ANNUAL FIRE LOSS.

The first part of January the insurance people of the different cities of the United States have been taking stock of the amount paid out for loss by fire during the year, and in many of the cities they find that the toll has been heavy. One estimate in hand gives the loss in the United States and Canada during the past year as about \$204,000,000, and suggests that at this rate the insurance companies will have to charge a higher premium. The report indicates that the loss is approximately thirty-five millions less than in 1908, and a reduction of fifty millions over the average of five years previous. Yet, for all that, its proportions are alarming, and is arousing the insurance people enough that they will put more restrictions around their risks. Also, it should arouse the general public into action and result in a greater degree of perfection in fireproof construction. The little

sented to allow products of the Kadinen Majolica Works to be extensively exhibited. The first exposition, held in 1905, was participated in by firms and associations from all parts of Germany, as well as from several surrounding countries. The object of the present exposition is to show architects, contractors and masons the advances that have been made during the last five years in the building and ceramic industries.

The exposition is to be divided into two sections, one for the materials themselves and one for the machines, tools and other accessories used in the manufacture of the materials. In the material section the products of clay, cement, lime, porcelain, stoneware, terra cotta, chamotte, gypsum, concrete and artificial stone industries are to be exhibited, as well as models and drawings of buildings and building parts.

The management is anxious to enlist the interest of



A Residence at St. Paul, Recently Built of Koch's Interlocking Hollow Brick.

progress helps some, yet it is doubtful if during the year any progress was made in the way of saving money, if we take into consideration the fact that in other years there was some special calamities that helped swell the sum total. We are glad to see the newspapers agitating this subject, because there is urgent need for the arousing of more interest in building, so as to reduce the fire hazard.

CLAY EXPOSITION FOR BERLIN.

A second International Exposition of the clay, cement and lime industries is to be held in Berlin from June 1 to July 18, 1910, under the auspices of the German Association of the Clay, Cement and Lime Industries.

Minister of the Interior Delbrück has accepted the honorary presidency of the exposition, and the Emperor has con-

American firms in the exposition. All inquiries relative to the exhibiting space and the conditions for exhibitors should be addressed to the German Association for the Clay, Cement and Lime Industries, Dreyse-Str. 4, Berlin, Germany.

PROF. A. V. BLEININGER TO AID THE AMERICAN SOCIETY FOR TESTING MATERIALS.

The American Society for Testing Materials has appointed a committee to formulate specifications for testing clay, cement and sand products, and included on the same Prof. Albert V. Bleininger, in charge of the clay testing department of the technologic branch of the United States Geological Survey, Pittsburg. The American Society for Testing Materials is affiliated with the International Society for Testing Structural Materials, and is doing good work of great importance to the building interests of the country.

PROSPERITY PRESENT AND PROSPECTIVE.

**The New Year Looks Good to Clay-Worker Readers Throughout the Country.
Increased Demand for Brick Anticipated in Most Localities.**

Colorado Brick Manufacturers Anticipate Busy Season.

DEAR MR. RANDALL:

Our business for 1909 was better than the year previous. The prospects for 1910 at present are better than at this time last year. The architects report an unusual amount of work in their offices, which will commence as soon as the weather breaks up, which has been unusually severe for the past six weeks. The standard size of face brick in this city, regulated by city ordinance, is $8\frac{1}{4} \times 2\frac{3}{8} \times 4$.

Very truly yours,

Denver, Colo.

R. D. LINDSAY,
DENVER PRESS BRICK CO.

Southern Brick Manufacturers Happy and Hopeful.

DEAR MR. RANDALL:

The year 1909 was about 40 per cent. better with us than the year 1908. The years 1906 and 1907 were the best years we have ever had. The prospects for 1910 appear to me that they will probably be 60 per cent. better than 1909, with considerably better price. The prevailing price now is \$6.50 delivered at the job. Our brick measure in the hard brick is approximately $2\frac{1}{4} \times 3\frac{3}{4} \times 8$, and we set the pace for the balance of the crowd in size, and, in fact, in almost everything else. The prospects in the south generally and especially in Georgia, are better than I have ever known them in my experience of twenty-five years in the mercantile and manufacturing world. It occurs to me that the eyes of the whole world are on our part of the country, and that we will have a lot of people who will come to the south next year and go in business with us, all of whom will be very cheerfully welcomed. The trouble here with the brick business is that it is very much overdone. We have a capacity of 100,000,000 per annum, and I doubt very much if we will be able to market over 60,000,000 this year. However, we hope things will get to where we can run our plants to full capacity.

Yours very truly,

Macon, Ga.

W. E. DUNWODY.

New England Manufacturers Wear the "Smile that Won't Come Off."

Editor THE CLAY-WORKER:

The year 1909 has been a good year for the brick business in New England; that is, compared with the two previous years.

Of course, no brick man was fully satisfied (did you ever know one who was), but the marked improvement in the amount of building operations put new heart and life into every "mother's son" of a brickmaker.

And that is not the best of it. The outlook for the coming season is very encouraging. The brickmakers are rubbing their hands in anticipation of increased orders and advanced prices, and I heard of one the other day who is already looking up the prices of automobiles. So far as I know, no brickmaker of this section has tried to fly. We confess to being far behind the west in this respect. We will never forsake good old "mother earth" as long as she contributes so generously to our stock in trade. In other words, there are no high flyers among the eastern men—no "birds." If anticipations are realized, however, it may be difficult to keep them down.

You ask about "the price of brick per thousand delivered at the job." I should say for Boston, about \$9 to \$10 per thousand for commons, and from \$23 to \$40 for face, according to color, size and point of delivery. In regard to "the prevailing size of brick" in our market. There is no prevailing size. The same old conditions still hold. Every man's brick a size unto itself, and no two just alike. If I was to specify the size definitely, I should say, as the school boy did, "about the size of a piece of chalk."

I heard recently of a case where the contractor sent back

a lot of brick, and when the poor brickmaker asked the reason he was told that they were so swollen in the middle that when one of them was set on end it closely resembled in shape a certain "Bill" of national fame. I trust you will excuse the tone of levity in this communication. Under present conditions it is difficult for a New England brick man to be serious. With a fair prospect of being able to pay up some of our old long past due tailor's bills, we are filled with joy. We can not help being funny. In fact, like Oliver Wendell Holmes, we do not dare to be as funny as we can.

Very truly yours,

FISKE & Co., Inc.,

GEO. M. FISKE,

President.

Boston, Mass.

Hoosier Brick Manufacturers Have Good Prospects.

T. A. RANDALL & Co.:

GENTLEMEN—I am pleased to advise you that our business for 1909 was larger in volume than the previous year, a gradual improvement being shown toward the close of 1909, and, judging from appearances, the prospects are fair for another good year in 1910.

The price of common building brick in Evansville runs from \$5 to \$6.50 per thousand delivered at the job, the size of brick being $8\frac{1}{4} \times 4 \times 2\frac{3}{8}$.

Wishing you continued success for your splendid journal, I am,

Cordially yours,

H. C. KLEYMEYER,

Evansville, Ind.

First Avenue Brick and Tile Co.

Outlook for 1910 Good.

DEAR MR. RANDALL:

We did a little better in 1909 than we did in 1908, selling about 300,000 more brick. The average price delivered to building is \$5.50 per thousand. Size of brick, $8\frac{1}{4} \times 4 \times 2\frac{3}{8}$. The outlook for 1910 is better in that there will be more brick used, but we see no chance for better price.

Yours respectfully,

H. W. KATTERJOHN.

Paducah, Ky.

Paving Brick Manufacturers Run to Full Capacity.

T. A. RANDALL & Co.:

GENTLEMEN—At the beginning of the season 1909 we had a large stock of both paving brick and block, but at the close of the year we had nothing on hand to speak of, and our plant was run to its full capacity the entire time. With the present outlook, we feel certain that the year 1910 will be equally as good. We do not manufacture common brick.

Yours very truly,

THE FLINT BRICK AND COAL COMPANY,

Des Moines, Iowa.

By W. H. BRECHT, President.

Promising Outlook for 1910.

Editor THE CLAY-WORKER:

We consider the outlook for the present year very promising, indeed more so than for the past several years. All the plants at this point have adopted a uniform size of $2\frac{1}{4} \times 4 \times 8$.

Our business for the past twelve months, in volume, has far exceeded our expectations, being very satisfactory, but prices that have prevailed have made the season a very unprofitable one. While through a local organization maintaining one sales agency, we have obtained a fairly satisfactory price from the local trade, over 75 per cent. of our business is foreign and taking into consideration the price obtained at home, our average for the entire year's business would make our brick about \$4.60 per thousand f. o. b. cars at kiln. We are now asking locally \$6.50 per thousand delivered at building site, delivery charges being about \$1 per thousand. We have also been able within the past thirty

days to advance our railroad business to \$5 f. o. b. cars at plant.

Owing to a lull in business at the beginning of the fall, our yards were forced to close down on account of lack of storage room, and the unusual hard winter has prevented plants from resuming operations, consequently our stocks are running very low. There are five large plants operated here and only three are now carrying any stock at all, and that very limited.

Yours very truly,
GEO. O. BERRY.

Columbus, Ga.

New Yorkers Look Forward to Good Season.

PUBLISHERS THE CLAY-WORKER:

The prices of common brick in the New York market the past year, from the brick manufacturers' point of view, was not altogether satisfactory. Evidently too many brick were made and too much concrete used to inure to much profit to the brick manufacturers. We look for a large amount of building in 1910, and correspondently large output of brick.

Yours very truly,
W. A. UNDERHILL BRICK COMPANY,
E. E. GORTON, General Manager.

New York City.

Omaha Brick Manufacturers Have Best Year in Their History.

Editor THE CLAY-WORKER:

Business in Omaha has been best in its history in building permits and brick manufactured. Prospects for the coming year are excellent; we are preparing to make one-fourth more brick this year than last year. Prices range from \$7.25 to \$8 per thousand delivered on job. The size of brick is 2 1/2 x 4 x 8.

Bricklayers are asking a raise in wages from 62 1/2 cents to 75 cents per hour. It may mean a strike, and that will be felt by the brick manufacturers.

Yours very truly,
J. FRED SMITH.

Omaha, Neb.

Demand for Brick Good in Pennsylvania.

Editor THE CLAY-WORKER:

Our total sales were just a few dollars more in 1909 than 1908. Prices for common brick run about \$6.50 to \$7 on job. We are not very well posted as to the size of some of the other brick sold here, but as near as we are able to learn, run about 8 3/4 x 4 x 2 3/8.

The outlook for the coming season looks very good; we feel that the demand will exceed the supply.

Yours truly,
THE A. F. SMITH CO.

Brighton, Pa.

Optimism Prevails in Alabama.

FRIEND RANDALL:

Our business in 1909 was about the same as 1908, owing to very slack business the first four months of 1909. The last six months of 1909, however, were almost back to the same basis of the banner year of 1907. Judging from the inquiries we are receiving and the amount of building planned as reported in the press, the prospects for 1910 are most encouraging. Optimism seems to be in the air, and we believe that the brick manufacturers will receive their full share of the prosperity that is coming.

Prices in 1909 were about on the same level as before. The common brick manufacturers in this district have had an exceedingly fine year, with large demand and good prices. I understand that kiln run brick have been about \$6.50 per thousand, and all hard from \$7 to \$7.25 per thousand delivered at the building.

Yours very truly,
SIBLEY-MENGES PRESS BRICK COMPANY,
Per JOHN W. SIBLEY, President.

Birmingham, Ala.

Expects 1910 to Surpass all Former Years.

DEAR MR. RANDALL:

The year 1909 was one of the best ever with us, sales being 35 per cent. over 1908. Prices were about 7 per cent. below 1908, owing to outside parties forcing their surplus in on us.

At the present prices are strong, \$7.50 to \$8 delivered at job, with stocks very low. The whole season up until October

prices ranged about \$6.50 delivered, the advance having taken place since. Never in my time has there been so much cellar digging at this time of year as now, with 18 inches of snow and below zero weather. A large volume of work is being pushed right along, even concrete not slowing up. The year 1910 bids fair to eclipse them all. Our only worry now is where are the men and teams coming from to carry it along. The prevailing size of brick here is 8 x 4 x 2 1/4. A committee of three brick manufacturers, in connection with the building inspector, is working at present to agree on a standard size all will unite on.

The Minnesota Clayworkers' Association held a very successful meeting on the 12th.

Wishing you and yours a very prosperous and happy
New Year, I remain,
Yours very truly,
A. L. MARTIN.

Minneapolis, Minn.

Output for 1909 Increased 40 Per Cent. Over That of 1908.

Editor THE CLAY-WORKER:

We made about 10,000,000 brick for the year 1908 and about 14,000,000 in 1909, an increase of about 40 per cent.

At the present time we are asking \$8.25 per thousand for No. 2 hard brick, delivered to the building, within the city limits.

Our size is similar to the New York City size, as those brick formerly came into this market. They measure about 2 1/4 x 3 1/2 x 8.

With good wishes,
Atlantic City, N. J.
Yours truly,
SOMERS BRICK CO.

Kansas Building Brick Bring Good Prices.

PUBLISHERS THE CLAY-WORKER:

We are thankful to say that our business for last year, while not as profitable as some preceding years, compares favorably with the majority.

The brick market is a little dull just now, owing to the long spell of wintry weather. Common building brick are bringing \$8 to \$8.50 per thousand delivered on the job.

The outlook for 1910 seems bright, and if the gas belt fellows in southern Kansas don't forget to add a little profit to the cost of their brick, we hope to get a reasonable price the coming spring.

Thanking you for past favors, we are,
Respectfully yours,
THE CAPITAL CITY VITRIFIED BRICK AND PAVING CO.,
Topeka, Kans.
By WILLIS EDSON, Secretary.

Brick Sewers for Atlanta, Ga.

DEAR RANDALL:

Our business for 1909 was away ahead of 1908, and the prospects for 1910 are looking even better than 1909. We have sold over 2,000,000 brick for immediate delivery, and there seems to be lots of work in the architects' offices, as we have inquiries for brick daily. Atlanta is going ahead with rapid strides; the city will invest over \$1,000,000 alone in brick sewers this year.

Prices are fair, ranging f. o. b. cars city from \$6 to \$6.25; for average all hard, \$1 more. The size of brick sold on this market are 2 3/8 x 3 3/4 x 8. We get THE CLAY-WORKER, which we read carefully and get much information from. Wish you luck.

Yours truly,
SOUTH RIVER BRICK CO.,
Atlanta, Ga.
W. A. HANCOCK, General Manager.

Milwaukee Paving Work Delayed by Legislation.

DEAR MR. RANDALL:

Our business in 1909 showed an increase of about 10 per cent. over 1908, and the present indications are that 1910 will be the largest year we have ever had.

Relative to the brick market of 1909: For common and face brick we did a much larger business than we did the year previous, but for paving brick, owing to some adverse legislation, the business was not as large on account of work being delayed by said legislation to such an extent that practically one-half came so late that it could not be done last fall.

Relative to the common brick market in Milwaukee county:

Without having any records, we would say that approximately 75,000,000 common brick were used in the county, of which 40,000,000 were supplied through the Chicago market. The size of the ordinary brick is $2\frac{3}{8} \times 8\frac{3}{8} \times 4$. Local brick are a trifle larger.

Milwaukee, Wis.

Yours very truly,

GEO. J. SCHWARZ.

Flattering Prospects for 1910 in Texas.

Editor THE CLAY-WORKER:

Our business last year did not run as much as the previous year, but this, however, was not on account of the demand for brick. Our plant has been shut down for about ninety days on account of repairs and installation of new machinery and kilns. We expect to resume operations the first of February.

The prices for 1909 were exceedingly low. To give you an idea of what was doing in this line, before the panic struck this territory in October, 1908, we were getting \$7.75 per thousand f. o. b. cars at our plant for common brick. When the panic hit, prices went down to \$5.50 f. o. b. cars at plant,

and have never raised until the first of this year. Of course, these conditions did not apply to other parts of Texas, but only in the northern part. From what I can learn the south Texas people have been getting very good prices on account of not having an over-production.

The prospects for 1910 in this territory are exceedingly flattering. The people have a different view of building from what they had the first of last year. In other words, from conversations with different owners, architects, contractors and others, they are all anxious and willing to go ahead on their respective jobs and do not seem to hang fire, the results of which is that even at this time of the year we have a great many buildings under construction. Prices have begun to go up and the supply is short. However, the daily output of brick to take care of this market immediately around Dallas amounts to 350,000, and you can readily see that it takes considerable building to take care of this much output.

With kindest regards, I am,

J. M. HARRY BRICK COMPANY,

Dallas, Tex.

Per J. M. HARRY.

THE STATE CONVENTIONS.

THE IOWA BRICK AND TILE ASSOCIATION.

The Twenty-eighth Annual Convention.

THE TWENTY-EIGHTH Annual Convention of the Iowa Brick and Tile Association met in the parlors of the Savory hotel, Des Moines, Iowa, January 11, 1910, the president, Hon. J. L. Stevens, presiding. Over 150 members were in attendance.

A welcome address by the mayor, the Hon. A. J. Mathis, tendering to the members the freedom of the city and other good things was heartily applauded.

A response by Mr. Wm. H. Brecht, a member of the association, followed, in a happy vein, thanking the mayor for the hearty welcome.

The annual address was delivered by the president, Hon. J. L. Stevens, of Boone, Iowa, giving a brief review of the progress that has been made in the manufacture of brick and tile, and the increased interest in the work of land drainage since the organization of the association.

A very interesting paper was read by Mr. H. R. Straight, giving practical experience in drying brick and tile. "Iowa's Great Drainage Field," was an interesting paper by Prof. A. Marston, of Ames. The professor divided the state into several divisions, outlining the importance of drainage work needed to be done, taking into account the geological formation of the several divisions. In the treatment of the subject, Professor Marston clearly outlined the character and magnitude of the work to be done, if the maximum benefits are to be derived. While it is true that much has been done in the state in the line of land drainage, yet it is apparent that the work is only well begun, and in many instances not well begun, because of the want of systematized work.

J. A. Wilson, of Dows, Iowa, read a paper, the subject of which was "The Difficulties Encountered in a Medium Capacity Plant," treating of the different management required for different clays—the labor problem. The writer advised the better treatment of the hired help. He said, in part: "Be courteous to your men; when they do well compliment them. Be with them as much as possible. In the marketing of products, first make the best tile possible and sell at reasonable prices, and push the trade along intelligent lines.

"In the burning of brick and tile there are difficulties with the up-draft and down-draft; he has found it hard to heat the outside of the kilns. By using the round circular flue in the down-draft kiln he gets better results. One difficulty is getting the top of the kiln too hot. We have found

it best to dry the kiln slower and fire slowly at first. Another trouble that is common is that of setting too close." In conclusion, he said, "Make the best tile possible, sell at reasonable prices, study the clays and do the best possible."

Geo. H. Emory, Des Moines, Iowa, read a very interesting practical paper, treating the subject, "An Organized Sale of an Organized Product," which appears in this issue of THE CLAY-WORKER.

"Promotion of Clay Building Construction," was the topic of a paper by C. W. Lansing, of Chicago.

A Member: "We need a better supervision of the drainage done in this state. We want a lower cost of administration—it costs too much to begin the work."

Mr. Dodson, secretary of the Iowa Drainage Commission, was called for.

Mr. Dodson said: "I did not come here to make a speech, but at your request I will take a little of your time. The conservation of water power, the question of drainage, our bodies of water, are live questions in this state. Minnesota has ordered its State Drainage Engineer to lay the state off into districts, so that all the work done in the future shall conform to a district system. Under present conditions we are losing the silt, filling up our streams, and losing the fertility of our farm lands. If we ever make our larger streams navigable, we will have to reduce the work to a system.

"A standard for good tile should be established and tile graded accordingly. There are the upper streams, then the lower streams and the delivery of the water, drainage of the river bottoms, and, lastly, the drainage of the tablelands. The lands in the southern portion of the state need special consideration."

After explaining the work which the committee had in hand, he said: "When the work is completed, it is intended that all shall be treated fairly."

On motion, it was resolved that the president of the association be requested to appoint a committee of three to act with the Iowa Drainage Commission. The motion was carried and the committee subsequently appointed.

Thursday Morning.

The association convened at the appointed time and the president announced that the morning session would be devoted in part to the discussion of papers which had been read and miscellaneous questions.

On the question of "Singleness of Purpose in the Brick and Tile Business," Mr. Emory said: "Make one kind of

product; if tile, make the best tile; if brick, make the best brick possible, and study the best methods of selling either."

On the question as to economy in the use of fuel, there was quite a difference in opinion as to the amount of fuel required to burn a given amount of brick or tile as given by the members, conditions having much to do with the amount required. Mr. Stoll said: "I think that the amount of fuel used depends very much on the fireman. I believe the fires in the burning should be replenished when they need it, rather than every so often, or time firing by the clock."

The Committee on Resolutions reported as follows:

First. We favor of the proper testing and grading of drain tile.

Second. To urge the further improvement of the highways and their proper drainage.

Third. A vote of thanks to the officers of the association and the citizens of Des Moines.

Fourth. Endorsing the movement for a navigable waterway to the gulf to promote the commerce of the middle west.

Boone, Iowa, was chosen to entertain the association for the next annual meeting, to be held in January, 1911.

The following officers were elected for the ensuing year:

President—J. L. Stevens, Boone, Iowa.

Vice-President—H. A. Rawson, Des Moines, Iowa.

Treasurer—Walter Newcomb, Corning, Iowa.

Secretary—C. B. Platt, Van Meter, Iowa.

REPORT OF THE THIRTY-SECOND ANNUAL MEETING OF THE ILLINOIS CLAY MANUFACTURERS' ASSOCIATION.

THE THIRTY-SECOND Annual Meeting of the Illinois Clay Manufacturers' Association was held at Champaign, Ill., January 18, 19 and 20. The Hotel Beardsley was convention headquarters, while the several sessions were held in the Elks' hall, adjacent to the hotel. There were no machinery exhibits in the convention hall, the machinery companies' salesmen and representatives spending the time in distributing their catalogs and souvenirs and button-holing the delegates. A number of samples of face, common and paving brick were on display, as were also catalogues, blue prints of machines and the clay journals.

The attendance this year was, for some unaccountable reason, very poor, the first session being opened with only forty members present, the majority of whom were salesmen and representatives of clayworking machinery and supply companies. The final registration totaled seventy-nine. The program was the best the association has had in years, and was thoroughly enjoyed by all present.

Tuesday morning, January 18, was given over to registration, renewing and forming of acquaintances, and the examination of the clay exhibits, etc.

The first session was called at 3 p. m., Tuesday afternoon, with President Hammerschmidt, of Lombard, Ill., in the chair, the session being opened with the reading of the president's address, which gave a detailed report of the work that was accomplished by the association's committee in securing an appropriation from the state legislature for the building of a ceramic building at the Illinois University. President Hammerschmidt told of the present status of the building brick industry in Illinois and quoted predictions of some of the best architects that the year of 1910 will mark a new era in the construction of homes, and that brick will be used even more abundantly than in the past.

"The Progress Being Made by the Ceramic Department of the University of Illinois," was the title of a report by Prof. C. W. Rolfe, containing a brief summary of the work carried on in the department during the past year, and the work to be done during the present school period. In the report, Professor Rolfe urged the members to ask the legislators in their respective localities for assistance in the securing of a sufficient appropriation for the erection of a ceramic building at Illinois University, and means for furthering the work. In making this appeal, Professor Rolfe asked the members to make it a personal plea for the clayworkers instead of for the school, as the department was for the aid of the clay

product manufacturers, and not for the benefit of the university.

Following Professor Rolfe's report, J. M. Mamer, of Campus, Ill., read a paper on "Which Pays Best in the Manufacture of Drain Tile, Quality or Quantity?" which advocated quality before quantity. A paper by Mr. R. M. Combs, of Chicago, Ill., on the "Relation of the Face Brick to the City Beautiful," was then read. In his paper, Mr. Combs told how the face brick should be used and the benefits to be derived from same. After a short discussion the session was adjourned.

Tuesday evening was left open for social meetings.

Wednesday morning the second session was called to order at 10 o'clock, and the Hon. S. C. Tucker, mayor of Champaign, was introduced, and made a brief address of welcome. This was responded to at length by Mr. D. O. Loy, of Sheffield, Ill.

The report of the Publicity Committee was then read, which showed that their efforts had been fruitless, as they received only a few responses to the hundreds of letters that had been sent out asking for financial aid in promoting publicity work. The report was accepted and the committee discharged.

Then followed an earnest discussion on the subject of publicity work, Messrs. Stipes, Richardson, Robb and Stoll all urging the members of the association to join the Clay Products Association of America, an auxiliary to the N. B. M. A., and help in its publicity work which offers great benefits to its membership.

"The Origin and Use of Coal," was the title of the next paper read by Prof. J. M. Knoté, of Urbana, Ill. In this he told how to use coal economically and the best method of buying coal, namely, by the heat unit system.

The paper of Mr. Richard G. Hoffman, of Lagrange, Ill., on "What Does it Cost to Work Impure and Non-homogeneous Clays," was then read. This will appear in a subsequent issue of THE CLAY-WORKER.

After the appointment of the various committees, the convention adjourned for dinner.

At 2:30 Wednesday afternoon, the third session was opened with the reading of an excellent paper by Edgar J. Davies, chief inspector of Chicago, Ill., on "The New State Labor Law, Which Provides for the Health and Safety of Employees of Factories." In this he gave a detailed discussion of the new law, telling of its provisions, giving the rules and regulations demanded by the Government for protecting the employees.

After a lengthy discussion of the subject, Mr. R. H. McElroy, of Dayton, Ohio, read an interesting paper on "Producer Gas and the Continuous Kiln." He spoke intelligently of the use of producer gas and its practicability for the clayworker. This paper gave vent to an unusually long discussion, in which the subject was argued pro and con.

The delegates then went in a body to the high school building, a square distant from the Elks' hall, where Mr. Marion W. Blair entertained them with an illustrated lecture on "The Influence of the Manufacturer Upon the Use of His Product and its Effect Upon the Public."

At 8:30 o'clock sharp, the delegates sat down to a most enjoyable banquet in the Beardsley hotel dining room. The tables were tastily decorated with carnations, the menus placed at each plate being attractively printed. An orchestra furnished music which was both sweet and tuneful.

Dr. A. L. Converse, of Springfield, Ill., acted as toastmaster, and told a number of amusing stories. The toast list included speeches by J. W. Robb, Clinton, Ind.; Dean E. J. Townsend, Urbana, Ill.; Will P. Blair, Indianapolis, Ind.; Prof. W. H. Holmes, Urbana, Ill.; W. D. Richardson, Columbus, Ohio; Professor Parr, Urbana, Ill.; Prof. A. V. Bleining, Pittsburg, Pa.; Professor Stock, Urbana, Ill., and poet D. O. Loy, Sheffield, Ill.

The closing session of the convention was held Thursday morning. Professor Cahill, representing the Coyne National Trade Schools, of Chicago, Ill., delivered one of the most interesting addresses of the convention, giving a detailed description of the work of the trade schools and its benefits and advantages to the brickmakers. He told of his boyhood experience with organized labor, and showed the inner working of their system. In concluding his talk, he urged the

delegates to assist all trade schools in increasing their attendance, and thus help in giving the country more and better bricklayers, which, he declared, is at the present time the brick manufacturers' sorest need.

Prof. R. T. Stull, instructor of the ceramic school at Illinois University, presented an excellent paper on "A Lubricating Die for Hollow Ware." He illustrated his talk with a sketch of a lubricating die and explained the advantages of this type of die over dry dies, telling of a method of applying water lubrication to the core.

After a lengthy discussion on this subject, Prof. A. V. Bleininger read his paper, "Facts and Fancies Dealing With the Clay Industry." This will appear in a subsequent issue of THE CLAY-WORKER.

The various committees then made their reports. The treasurer's report showed a balance in the treasury of \$24.75.

The following officers were elected:

President, D. C. Haeger, of Dundee, Ill.; vice-president, A. E. Huckins, Champaign, Ill.; secretary, Geo. H. Hartwell, Chicago, Ill.; assistant secretary, C. W. Lansing, Chicago, Ill.; treasurer, J. W. Mamer, Campus, Ill.

The committee on resolutions read their report, which was adopted as read. The resolutions included expressions of thanks of the association for the work of its officers, the instructors of the ceramic school, the mayor and citizens of Champaign, and the street railway company for the part they had taken in making the annual meeting a success. The report also commended the legislative committee for its work in securing an appropriation for the school, the Clay Products Association for its help, and tendered Prof. A. V. Bleininger a sincere welcome back to the school of ceramics. It recommended that all the professors and instructors in the school be made honorary members of the association, and thanked Edgar T. Davies, Chief Factory Inspector of Illinois, for his address and the work he is doing. A motion to exchange convention reports with the Wisconsin and Iowa Associations was tabled.

After brief speeches by the newly elected officers and the reading of a few letters from absent members by the secretary, the convention adjourned sine die.

Many of the delegates remained over to attend the institute program offered by the ceramic department. Nearly forty people were present when Prof. R. T. Stull introduced Prof. A. V. Bleininger, the first speaker on the program. His lecture was on the subject "The Effect of the Size of Lime in Clays." He exhibited a number of burnt trials made up with clay and percentages of lime, ground to pass different meshes and, and showed the effect of the lime in the burning.

Prof. J. M. Knote then read an interesting paper on "The Use of Burned Clay in Hydraulic Mortars," giving some facts about clay lime mortars, and explaining the best temperatures for burning the clay for that purpose and describing some experiments on clay lime brick.

Prof. R. T. Stull followed with a lecture on "Laminations in Clay Issuing from a Die," showing different kinds of laminations, their causes and remedies with blackboard sketches.

Professor Bleininger ended the afternoon program with a lecture on "The Preheating Treatment of Clays," explaining its peculiar influence on the physical properties of clays, and both its advantages and disadvantages.

Friday morning, four lectures were given, as follows:

"Fire Brick and Some Testing Methods Employed by the Government Laboratory at Pittsburg," by Prof. A. V. Bleininger; "The Advantages of Thorough Clay Preparation," by Prof. R. T. Stull; "The Development of a System of Burning Brick," by Prof. J. M. Knote, and "The Gain in Strength of Burnt Clay With Decrease in Porosity," by Prof. A. V. Bleininger.

THE NEWTON ELEVATOR.

A profitable practical piece of machinery that is meeting with approval in its adoption by brick makers, is the Newton elevator, patented August 3, 1909. It performs such work about the kilns that makes possible the elimination of the pitching and catching of the brick in setting or emptying. It does away with the skilled labor required in such work, being a light and portable arrangement mounted on wheels in such a fashion that it can be run at any angle. For complete

information, write A. C. Newton, Crescent, N. Y., who has an ad. on page 123 of this issue.

A CALENDAR AND SOUVENIR SHOWER.

This is the time of the year machinery and supply companies, clay manufacturers and the contractors send to their trade calendars and souvenirs of various kinds and descriptions, happy mediums for expressing their well wishes for the coming season, and by so doing incidentally advertising the fact that they are still in the business and would be thankful for a "good fat order."

THE CLAY-WORKER sanctum has been favored with a regular shower of calendars; in fact, for the past few weeks these complimentary gifts have fairly poured into our offices, making the poor postman work overtime in order to bring to us the sunshine which, as the old adage goes, always follows a shower.

The class of calendars received this year is above the average; indeed, there is scarcely one that does not find a most welcome place on our walls. It is most difficult to decide just where to start in describing the calendars of our large collection. We will pick them up at random and tell you of them in brief.

A calendar of unusual beauty is that called "Springtime," which was sent to us with the compliments of the Alton Brick Co., of Alton, Ill. Pasted on a dark brown heavy paper, which in turn is attached to a light brown cardboard, is a three-colored picture of a spring scene along a quiet river, the blue waters showing the reflections of the budding trees on the farther bank of the stream. A dainty calendar is fastened to the bottom of the card by a dark brown cord, while at the top is a bow of pretty brown ribbon.

The Post Pipe Company, of Texarkana, U. S. A., has for its souvenir an attractive card, 8 by 14 inches in size, at the top of which is a night scene of the office and factory printed in red, showing the burning kilns and the large electric sign bearing the word, "Post Pipe Co.," on the highest point of their factory building. Below the picture is a price list of their vitrified salt glazed sewer pipe of both standard and double strength, ranging from 3 to 36-inch.

"Here He Comes" is the title of the many colored picture on the calendar of the Tyro Vitrified Brick Company, of Tyro, Montgomery County, Kansas. The background of the picture and calendar tab is a conventional design printed in brown, representing a clay panel. In the picture is seen the mother holding up to a window the youngest of three children, that he may see the father coming home to join his happy family. The picture is from the painting by Carl Hirschberg, and is beautiful in every detail.

The C. K. Williams & Co., of Easton, Pa., has for its calendar this year an enlarged design of the label which appears upon its goods, and, as stated on the calendar, is a guarantee of quality. The label is circular, 6 inches in diameter, and printed in three colors, bearing the name and address of the company and the words, "Anchor Brand, Dry Colors and Fillers."

The Ohio Ceramic Engineering Company, of Cleveland, Ohio, is mailing to the trade a large calendar, on which is shown illustrations of their various makes of dryer cars, transfer cars, turntables, portable tracks, switches and rails, dump cars, represses, brick and tile barrows, screens and kiln bands and kiln fittings. The calendar is a good piece of advertising and shows off the company's products to good advantage.

"The Village Championship" is the title of the beautifully colored picture on the calendar of the Sterling Brick Co., Olean, N. Y., manufacturers of the Olean vitrified shale paving blocks. The picture shows the two strong men of the village wrestling for the championship in front of the cross-roads hotel. The large group of spectators, according to their several temperaments, are keenly enjoying the contest, with the possible exception of two old ladies, who stand in fear and trembling on the far corner, shocked at such "goings on." Any one who has ever lived in the "real" country town will recognize that this is from life and was painted by a man who

"knows." The painting is by Fletcher C. Ransom, and possesses good art, is natural and clean. This calendar finds a most welcome place on the wall near the editor's desk.

The Northern Clay Company, of Auburn, Wash., manufacturers of architectural terra cotta, fire brick and other clay products, have for their selection this year a large 21 by 27 inch calendar, printed in black and red, giving the company's name and address, products manufactured, and the statement that they are the leading manufacturers of architectural terra cotta in the Northwest, in bold letters. In the center of the calendar is a view of the Everett High School, a most substantial and attractive structure, built of Northern Clay Company's architectural terra cotta.

One of the most artistic calendars we have received this year is that of the E. M. Freese & Co., Galion, Ohio, manufacturers of brick, tile and terra cotta machinery. A large black calendar tab, with white lettering, is fastened to a heavy cardboard, the background proper being black, to offset the tastily printed conventional nasturtium design, printed in red and green. This calendar alone would have been sufficient in satisfying the recipient, but the Freese Company nevertheless was not content with sending only this attractive bit of advertisement, but also included in its complimentary gifts a leather pocketbook containing an accident insurance policy.

"Meditation" is the title of a copy of a painting by Philip Boileau being mailed to the trade by the Deckman-Duty Brick Co., of Cleveland, Ohio, which operates paving brick plants at Collinwood, Carrollton and Malvern, Ohio. Since it is well known that Mr. Boileau's best work is in the painting of lovely women, especially in the distinctive manner in which he gowns his subjects, it is useless for us to say that the calendar is inspiring and most acceptable.

Mr. James W. Hensley, of Indianapolis, Ind., has favored us with many fine calendars in the past, and each year brings to our office some new, interesting colored print, advertising Mr. Hensley's line of improved brick machinery and clay-working devices. "Good Old Dobbin," the title of the calendar's picture for this year, is a print showing the graceful head of a white horse looking over his manger with a look of intelligence in his face that makes one feel inclined to speak to and caress him.

"Recess Hours" is the name of the picture on the calendar of the G. B. Mentz Company, of Walkill, N. Y., manufacturers of brick molds. In this illustration three children are seen eating their lunch in one corner of the country school room, near the blackboard, on which a mischievous lad, sitting on the top of the desk eating an apple, though all the time keeping his eyes on the school room door, has crudely drawn sketches of the teacher.

The Bradford Pressed Brick Co., of Bradford, Pa., the manufacturer of the famous "Bradford Reds," has an unusual calendar, representing a large oil painting of a beautiful woman, whose face and figure is tinted with the ruddy glow from a near-by fireplace. The paper on which the picture is printed is an imitation of canvas, while a heavy cardboard is used as a frame, printed in imitation of hardwood. We are glad to see that the Bradford Press Brick Company has maintained the same high quality in its advertising literature that it has in its clay products.

"At the Fountain," a copy of a famous picture of a Grecian woman standing in meditation near a fountain, the graceful fingers of her right hand clasping the handle of a clay water jug, resting on the marble shelf of the fountain, is the illustration on the calendar of the Roessler-Hasslacher Chemical Company, of New York City. This company, manufacturers of high-grade chemicals for the clay trades, has always been very fortunate in the selection of their advertising literature. This, their latest calendar, does them much credit.

The Suffolk Clay Co., brick manufacturer, of Suffolk, Va., has for its calendar a pretty picture of a Virginia lassie, whose winsome face makes one forget she is only a calendar girl.

The Scott-Madden Iron Works, of Keokuk, Iowa, and Rushville, Ind., with office at St. Louis, Mo., is presenting to the trade announcements of the recent consolidation of the Scott Manufacturing Company and the Madden & Co. and a souvenir

metal bottle opener bearing the new company's name, the significance of which is that they want to open an account with you.

We are also the happy recipients of useful and attractive pocketbooks from the Bessemer Limestone Company, Youngstown, Ohio; the Pearl Clay Products Company, of Bradford, Pa., and A. C. Ochs, of Springfield, Minn.

The J. D. Fate Company, Plymouth, O., instead of sending a calendar to the trade, is distributing a valuable souvenir in the form of a filing case, covered with a rich red leather, on which is printed in gold letters the title, "Valuable Papers," and the name and address of the company.

The Dunlap Manufacturing Company, of Bloomington, Ill., manufacturers of the Perfect Clay Screen, is distributing at the conventions and mailing to their trade an attractively printed desk card on which is printed a cleverly written paragraph full of wise sayings on man and his life.

The calendar of the Salmen Brick and Lumber Company, of Slidell, Iowa, is the largest and most pretentious one we have received this year. It consists of twelve large 20x32-inch pages, one for each month, and bearing the title of the company, its offices, addresses in Slidell and New Orleans, a panoramic view of their brick and lumber yard at Slidell and a list of their works and yards. Besides the above mentioned information each page contains the two calendars of the previous and succeeding months.

The American Clay Machinery Company, of Bucyrus, Ohio, is presenting to its trade a useful leather covered memoranda book which contains a year's calendar, pages crowded with information relative to postal rates, distances and postal time from the large cities to New York, values of coins, 1900 census of cities in the United States of over 35,000 population, interest calculations and laws, maps, blank pages for addresses, memoranda, complete year's diary, cash accounts, etc., including several pages setting forth a few of the merits of the "American" clay machinery.

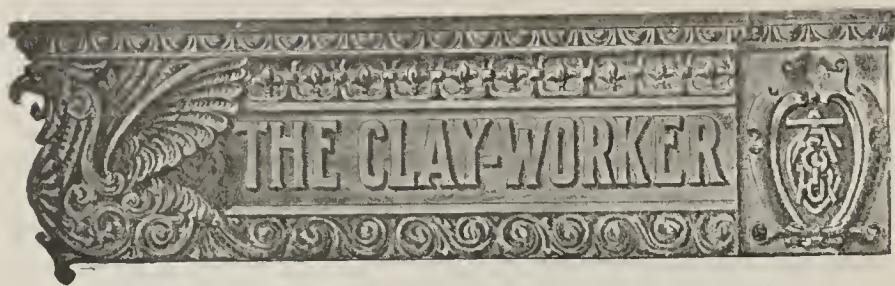
SOMETHING NEW IN THE ADVERTISING LINE.

A very novel bit of advertising is that of the Clinton Metallic Paint Company, of Clinton, N. Y., manufacturers of metal paints, mortar colors, roof and furnace cements and specialties. The advertisement is in the shape of a small wooden barrel with a "Little Yellow Side-Label" bearing the words, "Clinton Hematite Red" and the address of the company. "This little barrel," the company writes us, "is designed as an ash receiver, match box or pin holder and can also be used for a paper weight while being used for the other purposes." The company in sending the barrel, includes a letter thanking the recipient for past favors, hoping to merit by the company's treatment a continuance of the same and extending to him their best wishes for a prosperous New Year. We wish to congratulate the Clinton Metallic Paint Company on this novel advertisement.

A TIME-TESTED RECIPE FOR NON-RUST MIXTURE.

To keep metals from rusting, rub them off perfectly clean and paint them over with the following mixture: Dissolve half an ounce of camphor in a pound of lard, or in that proportion, according to the quantity used, and before it cools enough to be hard, mix in enough black lead to give the whole the color of iron. This should be well and thoroughly applied all over the metal, being careful not to omit any spots, and let it remain over night. The next day rub off clean with rags. If kept dry by the weather, metal treated in this way will keep perfectly free from rust all winter. Olmstead's varnish is made by melting two ounces of resin in one pound of fresh, sweet lard, and then mixing thoroughly. This is applied to the metal, which should be warm, if possible, and perfectly cleaned, and afterward rubbed off. This has been well proved and tested for many years, and it is all that it has been recommended to be. It is particularly well suited for planishes and Russia iron surfaces, which a slight rust is apt to injure seriously.

When you can make waste heat work, it is not waste unless it costs more to make it work than you get out of it.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	- - - - -	\$ 2.00
One copy, one year (if not paid in advance)	- - - - -	2.50
Six copies, " " " " " "	- - - - -	10.00
Ten copies, " " " " " "	- - - - -	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIII.

JANUARY, 1910.

No. 1.

CURRENT COMMENT.

When you feel like arguing politics—talk brick.

* * *

What brick needs is not a defense of its qualities as a product, but simply boosting, and more boosting.

* * *

It is not the man who goes to the meeting, but the one who stays home that is likely to have cause for regret.

* * *

Let us put off arguing about the north pole till next summer and talk brick association while it is too cold to work.

* * *

Break all the other resolutions if you feel inclined, but do not break that one you made to go to the N. B. M. A. Convention at Pittsburg.

* * *

The interest with which everything in the way of face brick is looked into by architects should stimulate even greater effort at bringing out new effects.

* * *

The best way to get a lot of pleasure and happiness out of the world is to make up your mind you are going to be pleased with all the good things you can find and ignore most of the others.

* * *

When you start to the convention, make up your mind that you are neither going to be a grump or a wall flower. Shake hands with and talk to every man you meet. You will feel better and make a whole lot more friends.

* * *

Of course, the man who stays at home can read about the meeting afterwards and digest the new ideas brought forth, but that is like eating the core of the apple after the others have had the apple. It is much better to go to the meeting

and be at the real apple eating by taking part in the discussions.

* * *

Did you ever see a chronic convention-goer that was a calamity howler? The answer is, attend all the conventions and be happy.

* * *

There is a certain point in reducing waste at the kiln beyond which the cost of reduction is more than the returns. Have you found that point?

* * *

Some of our municipal reform movements seem to have gone into cold storage. Just what effect this will have on the letting of municipal paving contracts remains to be seen.

* * *

A crowing cock may not amount to much itself, but he is great at exciting others and stimulating effort, and by this token he is worth while in the world, even though he may seem vain.

* * *

If any man thinks he has learned everything there is to be known about clayworking, let him attend carefully the sessions of the N. B. M. A. convention, and if he don't find some new ideas cropping out, we miss a long-shot guess.

* * *

After the row is over with and forgotten, it will be found that brick will do more to solve the forestry question than anything else by taking the place of lumber in much more of the structural work, and thus reduce the volume of demand on our timber resources.

* * *

If we would only study and push brick marketing methods with as good results as we have studied and pushed brick manufacturing methods in the past quarter of a century, there would be some stirring times in the brick business the next few years, and everybody would be hard put to it to supply the demands.

THE BUILDING SITUATION.

It may seem unusual and hard to believe that the end of the building season should show up with more building projects at hand than the beginning of the season. Or, in other words, that the end of the season should bring with it more promise of business than the beginning of the season. That, however, is practically the case the present year. For, with the close of the building season in some states, we find the architects have in hand more large building projects than they have had at any time since before the panic. In short, the indications are that from the plans in the architects' hands either being developed or being completed, there will be a big boom in the early spring in large structural work.

THE LITTLE FELLOWS IN THE BRICK BUSINESS.

In business or commercial life magnitude alone is no assurance of success. Moreover, there are times when the little fellows in a given line of work are seriously handicapped in making the best of their opportunities by the belief that they are so overshadowed by the larger manufacturers that they have no chance, and by striving at times to emulate the larger manufacturers in efforts to build up their own business.

It can be easily demonstrated that the same machines and methods that make for the best success in a large institution may be dismal failures in a smaller one. There are just as many opportunities to improve the plant, add new machinery from time to time, and be strictly up-to-date in a small institution as there are in a large one, but the line of work is different and it is a mistake for the little fellow to copy blindly after the larger ones. It does no harm to study

what the big institutions do and how they do it, the machinery they use and all that, but this should be for enlightenment, instead of for a rule to go by, and then a further study should be made of other machinery and the probable results of using it in a smaller institution, which may possibly be enlarged more or less by additional machinery. This latter point, that of enlargement, should depend more on the requirements of the trade and the possibility of further development than anything else.

LARGE OUTPUT NOT ALWAYS DESIRABLE.

One of the time-honored theories in connection with installing machinery and mechanical appliances to reduce the manufacturing cost is that the way to reduce cost is to increase capacity. This is a good theory, but, like many other good theories, we reach the point now and then when it is impractical. One's capacity should be regulated by one's means for handling the business and by the selling end of the business. The possibilities of disposing to advantage of the product in the territory that can be reached. It is manifestly bad business to equip a plant that will make an output double what can be sold profitably in the territory that can be reached. This is a mistake that is quite commonly made, too, in every manufacturing line, and in the manufacture of brick is no exception. It begets competition and soon whatever saving is effected in the cost of manufacture is sacrificed in lower prices in the hope of getting trade until, in the end, one is no better off, and indeed may be in a worse fix than at first.

ECONOMY IN OPERATING SMALL PLANTS.

The new idea in connection with economy of manufacture takes cognizance of all these things and embraces plans for reducing cost as much as practical without enlarging the output beyond the point where it may be disposed of profitably. It is quite a wise man who can so equip and handle a plant that when occasion requires it can be operated at half capacity and yet make virtually the same profit as when it is going at full capacity. Or, to put it another way, to operate it at half capacity without the cost of manufacturing amounting to more comparatively than when running full capacity. The man that can solve this problem can take a small institution and make money with it, because there is involved some of the same work, that of holding cost down as low as practical without depending on the theory of increasing capacity to reduce it. There are frequently new machines and appliances brought out for the smaller institutions by means of which the same work can be done by fewer men. These have the same effect as doubling the capacity with the same number of men. The smaller institutions can, by following closely after appliances of this kind, get from time to time new machinery that will help them make a more permanent success of their business than by striving always to emulate the larger manufacturers and get the reduction of cost by increased capacity.

GOING TO MEETINGS.

We heard a man the other day make some remarks to the effect that he didn't see how or wherein association work really benefitted him, and sometimes he had a notion to drop his membership in several organizations he belonged to. The remark was made at the beginning of a committee gathering of an organization, and this same man, before the little conclave was over, turned about and said that a man was a fool to stay away from meetings of that kind. When taken to task about his former remark that he did not obtain any material good from the association attendance, he modified his statement and said that he obtained enough good from it that he knew a man was foolish to stay away,

but the thing he was driving at in his first remark was that association work never entirely eliminated certain evils of the trade and wrong-doings.

Now, then, the man who figures that any association or the attendance at any meetings will entirely eliminate evil and all the wrong-doing in commerce and industry is sure to meet with disappointment. All of the efforts of the best people and all the good spirit in the world has not, through ages of steady work, eliminated the evil or wrong-doing, but it has put a check on it and made life more worth living every year. And it is difficult to conceive of what life would have been had there not been some such efforts at good. It is pretty much the same way about going to association meetings and having a conception of good. We will never reach the point of perfection because it is not human, but so much good is done that, as this man admitted, one is simply foolish to stay away from such gatherings. We are not expecting, though we are aiming at, the millennium right now, but we do and may confidently expect good returns. It is a matter of being able to recognize them in the form they come. Every man attending any kind of meeting or gathering with others in the same line of business is simply bound to get some good results out of it, either directly or indirectly, or both ways. Consequently, every man in the brick business or clayworking business of any kind should attend local meetings of the trade and then should attend state conventions, and then the big National Convention. They are all worth while and the more one attends, the more good results, the better becomes his grasp of his own business, and the more able he is to meet all industrial conditions that may arrive.

BUILDING NOT STOPPED BY PANIC.

Building operations have done some remarkable things during the past two years. For one thing, the panic did not stop building at all. It caused a change in the forces at work and a great shifting of the scenes that disturbed matters in steel, brick and heavy structural work considerably, but taking the building operations as a whole, they might be pictured as having shifted from one foot to the other, and then having gone blithely along their way.

REVIEW OF THE BUILDING SITUATION.

Just prior to the panic in 1907 the heavy volume of building operations was in office buildings and large structures of this class. There was some residence building, but the big ones represented the heavy volume of work. When the panic came and money got scarce, there was almost an entire cessation of the big building operations, but soon the building record began to show up in a new place. People who had money in banks and had been frightened took it out and went to building homes with it, and there followed quite an era of activity in suburban real estate and in building operations of the modest kind, in the building of cottages and other modest homes. Then, when the price of building material came down a little and the "Build Now" campaign was being waged as a consequence, it was these same people, the home builders in the city augmented by the agricultural districts, that responded most and did practically all the building. This work naturally did not call for so much structural steel and brick. Now and then the availability of help and the cheapness of building material induced some of the larger buildings, especially in the way of apartment houses. But there was very slow progress in the construction of the office buildings. The agricultural districts built partly because they were prospering, notwithstanding the general panic. The building in the suburbs of the cities was encouraged by the cheapness of building material, and by the desire on the part of many to have their money invested in

a home instead of risking it in banks after the panic. It did not seem, however, that all the agitation for building while material and help was plentiful and cheap served to encourage capitalists to invest in buildings extensively until toward the close of the present building season. In short, the interest in big buildings seemingly has just now recovered from the panic, and today there are in architects hands lots of projects for big building undertakings.

OUR COVER DESIGN.

The picture feature of our cover design is a replica of a famous bit of Wedgewood frieze entitled "The Triumph of Bacchus." That mythical personage is conspicuous by his absence; probably he is leading the procession, only a portion of which is depicted by the sculptor in this particular panel. From this attractive design right on through to the last cover every page of this immense issue contains something of interest, and our readers who study the entire issue most carefully will derive the greatest benefit. Our next issue will contain a full verbatim report of the National Convention, and of itself be worth several times the yearly subscription price. Don't miss it.

TRADE LITERATURE.

THE C. W. RAYMOND CO., of Dayton, Ohio, has been considerably annoyed, and in many instances delays costly to the brickmaker have occurred through the addressing of letters to individual members of the company instead of to the company direct. To politely call attention of the customers to this they have issued six clever slips from the Roycroft Press, the subject matter written by Elbert Hubbard and printed on Japanese parchment. One of these catchy cards bears the following impressive statement: "Personal letters are opened by the man himself. Suppose he is away? Address all communications to the company."

The C. W. Raymond Co. hopes that this will in a great measure facilitate the handling of their volume of business without injuring anybody's feelings. Write them for this collection of six attractive cards, which they will be glad to send to any clayworker for the asking.

THE FROST MANUFACTURING COMPANY, of Galesburg, Ill., has recently issued to the trade their Bulletin No. 18A, which contains information relative to their dry and wet pans. In answer to the question, "Why are the Frost pans the best?" they give eleven good reasons which it would be well worth while for those contemplating the purchase of a pan to read. Write the Frost Manufacturing Company, Galesburg, Ill., for complete information as to the merits of the Frost line of pans, and engines and boilers, too.

THE AMERICAN BLOWER COMPANY, of Detroit, Mich., has recently mailed us three handsome bulletins and a very artistically printed catalog of their various lines of dryer and kiln supplies. The three bulletins contain interesting information on their A. B. C. steel plate fans, A. B. C. cone fans and the Detroit steam traps, while the catalog deals with dry kilns for timber products.

THIS WILL HELP YOU.

When the world seems out of plumb
And business is on the bum,
A two-cent grin
And a lifted chin,
Helps some,
My boy,
Helps some.
—American Clay Magazine.

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 168.]

WANTED, FOR SALE, ETC.

FOR SALE.

One 999 Raymond brick machine and cutter with 30 feet delivery belt. Guaranteed in first-class working order. Reason for selling, clay not adapted to machine. Will sell for \$1,500 cash f. o. b. Edmonton. EDMONTON BRICK CO., LTD.,
1 1 c Edmonton, Alta, Canada.

WANTED—To let contract to responsible, practical brickmaker to make ten million brick. Will furnish modern equipped plant that can be operated the year round. Address
BOX 1—K,
1 1 cm Care Clay-Worker.

FOR SALE.

Brick and tile yard in city of 10,000 inhabitants. Capacity, 2,000,000 brick and tile per year. Address
BOX 1—INDIANA,
1 1 d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
Pages 122-126.

Rookwood Faience

For

ARCHITECTURAL COLOR WORK



Decorative Panel in the Subway, Fulton Street Station, New York City.

THE above illustration is one of many decorative panels made for the New York City Subway Stations, executed by Rookwood Artists. Original color schemes of great beauty are produced at a reasonable cost.

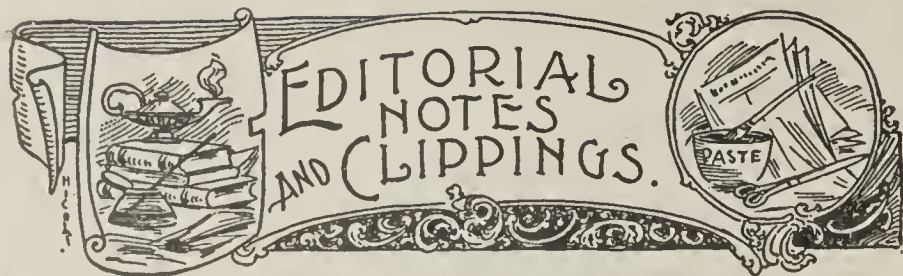
The Norse room of the Fort Pitt Hotel, which is illustrated in the reading pages of this magazine, is a notable example of Rookwood Mural Decoration.

For Samples, Photographs and Estimates, Address the

Rookwood Pottery Company

Cincinnati, - - - - - Ohio.

NEW YORK OFFICE, ONE MADISON AVENUE



Calvin E. Schildknecht and O. B. Coblenz have purchased the brickyard of Mrs. E. V. Brookey at Frederick, Md.

A number of improvements are being made to the brick plant of Denham & Ellis, of Goliad, Tex., which is being run overtime to keep up with their orders.

The plant of the Shelbina Brick and Tile Company at Shelbina, Mo., is to be enlarged this winter, with a view of greatly increasing the volume of the output.

The Brown Brick and Tile Company, of Houston, Tex., has been incorporated with \$175,000 capital stock. The incorporators are E. F. Brown, N. P. Delatte and W. C. Rucker.

W. I. Scott, superintendent of the Utica Brick and Tile Company's plant at Rice Creek, near Palatka, Fla., was so badly injured in a cave-in at the clay bank that he died a few hours after.

The New Superior Brick Company, Rockford, Ill., has been incorporated with \$25,000 capital stock to manufacture brick and other clay products. The incorporators are John E. Myers, W. W. Sawyer and E. W. Baker.

Carlson Brothers, of Superior, Minn., have purchased a tract of land at Feeley, Minn., where they will establish a modern brickmaking plant of 30,000 per day. They hope to have same ready for operation in the spring.

Marion, Ind., is to have a splendid new industry. Sherron Brothers will erect and equip a large tile factory in the western part of the town. These gentlemen have been engaged in the tile business for a number of years, but not on a large scale.

The American Roofing Tile Company has been incorporated at Memphis, Tenn., with \$20,000 capital stock by L. W. Richards, B. F. Davis, Wm. A. Keusder, E. J. Mills and H. W. Ershaw. The new company is authorized to do a general manufacturing business, including roofing tile and farming implements.

John D. Johnson, for many years a well-known brick manufacturer of Newfield, near Middletown, Conn., died suddenly December 31 from a stroke of apoplexy. Two years ago, on account of failing eyesight, he sold the brickyard in Newfield which was started by his father in 1857, and with which he had been identified from early manhood.

The Range Brick Company, organized to manufacture brick at Hibbing, Minn., has filed articles of incorporation. The incorporators, directors and officers are: C. A. Remington, Hibbing, president; H. S. Lord, of Carlton, vice-president; John Kees, Minneapolis, treasurer; A. W. Kerredge and R. L. Hall, of Minneapolis. The company is capitalized at \$100,000.

Henry Jones, a foreman at the Philadelphia Brick Company's plant, Philadelphia, Pa., was instantly killed by the caving in of a clay bank on which he was standing directing the work of some laborers. He felt the clay slipping under his feet and gave a jump backward and the jar caused the earth to fall into the pit below, burying Mr. Jones beneath twenty tons of clay.

The large plant of the New England Brick Company at Mechanicsville, N. Y., was almost totally destroyed by fire January 3. The loss is estimated at \$40,000, partly covered by insurance. The work of rebuilding the plant was under way in less than a week, and is being pushed as rapidly as possible. Charles E. Vredenburg expects to resume the manufacture of brick within sixty days.

N. L. C. Kachelmacher, of Columbus, Ohio, has resigned the presidency of the Columbus and Hocking Coal and Iron Company, and in all probability will go abroad in order to restore his health. Henry Stanley Haskins, of New York, former vice-president, has been elected president to succeed Mr. Kachelmacher. The famous "Kachelmacher" brick has won universal favor throughout the country, and the demand for this brick has been so great that the company has been forced to install two extra brick machines and is now busily engaged in erecting another twenty-chamber con-

tinuous kiln. The capacity of the plant, after the completion of the present construction work, will then be 250,000 facing brick per day.

The Macon Brick Company, Macon, Ga., is in the market for a small steam shovel. A second-hand one is preferred, but it must be in good condition.

Kenney Brothers, of Russell, Ontario, Canada, write that they have a deposit of shale and contemplate erecting a plant for the manufacture of dry pressed brick.

Rapp Brothers' tile plant at Morton, Ill., was almost wholly destroyed by fire January 6. The plant will be at once rebuilt. The loss is estimated at \$10,000, partly covered by insurance.

Frank Davidson, for twenty-seven years superintendent of Sankey Brothers' brick plant at Pittsburg, Pa., died at his home in that city January 12. He leaves a wife, seven sons and four daughters.

The Mount Carmel Vitrified Brick and Sewer Pipe Company, of Mt. Carmel, Ill., has been incorporated to manufacture paving brick and sewer pipe. Those interested are W. A. Stansfield, John E. Willis and J. S. Stansfield.

Clay of a very superior quality has been discovered on the farm of Amos Lehman at Fayetteville, Pa., and a company will be formed either to ship the clay to potteries or establish a plant for the manufacture of fine clay products.

D. A. Dinnie, of Minot, N. Dak., contemplates organizing a company for the manufacture of brick at Great Falls, Mont., where he will erect a plant of 30,000 daily capacity, which he will operate in connection with his brick plant at Minot.

The Curtis Brick Company, of Grant Park, Ill., has purchased a controlling interest in the Manteno (Ill.) Brick Company, which is capitalized at \$85,000. About two months ago the Curtis company bought the tile and brick plant at Beecher, and will operate all three plants.

Frank A. Brockway, of the well-known brick manufacturing firm of Brockway, N. Y., is the first brickmaker in the country to build and operate an airship. Mr. Brockway made a successful flight of about eighty feet recently, and after making slight adjustments to parts of the machine he intends to make another trip.

C. P. Dick, of Coffeyville, Kans., and A. C. Stich, of Cherryvale, Kans., have purchased the Fort Smith (Ark.) Vitrified Brick Company's plant. Mr. Dick will have the management of the plant, which will at once be overhauled with a view of doubling its capacity. This means new machinery, new dryer and additional kilns.

George F. Kreicher, former head of B. Kreicher & Son, brick manufacturers of Staten Island, died January 7 at his home, in New York City, of heart disease, following a two weeks' illness of bronchitis. He was sixty-four years old. As a young man he entered in the business of brick manufacturing started by his father. He retired from active control some years ago.

W. B. Kincaid, of Ewing, Va., has purchased the brick and tile plant of C. L. Searcy at Waco, Ky. The plant will be overhauled and put in shape for steady operation early in the spring, when roofing tile will be made in addition to building brick. Mr. Searcy was awarded a premium on his roofing tile at the St. Louis World's Fair, and Mr. Kincaid will keep the product up to the same high standard.

Ralph B. Small, W. E. Minter and Mercer Morris, of Macon, Ga., will establish in Columbus, Ga., a \$50,000 plant for the manufacture of sewer pipe. Options have been secured by these gentlemen on valuable lands containing very rich clay deposits. It is stated that operations will be begun at once. Messrs. Minter and Morris were until recently with sewer pipe manufacturers of Macon. These gentlemen are all enterprising and successful business men, and it is safe to predict that they will make a success of their newest venture.

The Weaver Clay and Coal Company has incorporated under the name of the Brazil Hollow Brick and Tile Company, and is capitalized for \$50,000. The following directors were chosen: J. F. Brown, T. H. McCrea and J. S. Hayward. Mr. Hayward has been superintendent of the plant for a number of years. The plant, which is located at Brazil, Ind., is one of the largest clay plants in the country, having recently been greatly enlarged and modernized. It has been demonstrated by tests that the company has an excellent shale for making roofing tile, and they will at once put in

(Continued on Page 102.)

MAKE

ROOMS NO. 227 AND NO. 228,
PORT PITT HOTEL

Our Headquarters Yours

DURING THE

Pittsburg Convention

We will be Represented by

H. H. FREESE
Galion, Ohio

R. A. WHISTON
New York

E. L. HESS
St. Louis

B. E. PLACE
Galion, Ohio

H. L. IRWIN
Pittsburg

A. J. FREESE
Galion, Ohio

EXHIBIT

One of our Model "G A" Machines and Size 50 Automatic Cutters will be shown in operation making ROUND EDGE, GROOVED, WIRE-CUT LUG PAVING BLOCKS in a nearby power building.

E. M. Freese & Co. Galion, O.

EDITORIAL NOTES AND CLIPPINGS—Continued.

roofing tile machinery, starting with the Spanish and interlocking tile.

Henry Jenkinson, representing South River and Perth Amboy capitalists, will establish a brickmaking plant at Plainfield, N. J.

Lon C. Hill has organized a brick manufacturing company at Harlington, Tex., and ordered machinery for a plant of 40,000 daily capacity.

The Carolina Brick and Tile Company, of Charlotte, N. C., has been incorporated with \$150,000 capital stock. Paul Chatham is at the head of the movement.

S. H. Amaker, general manager of the Amos Kent Lumber and Brick Company at Kentwood, La., has resigned his position, to take effect at once. He will go to Texas for his health.

The Williamstown (N. J.) Brick Company has been incorporated by S. L. Scholl, Wm. E. Watts and Joseph S. Bateman, with \$100,000 capital stock. They will manufacture brick and deal in building materials.

The Piedmont Brick and Tile Company has been incorporated by W. S. Lee and F. M. Sawyer, of Piedmont, S. C. The company has a capital of \$200,000 and will manufacture a special hollow pressed brick and roofing tile. A large plant will be established and manufacturing will begin at once.

The Massillon (Ohio) Stone and Fire Brick Company is gradually working out of the paving brick business, and more extensively into the manufacture of fire brick for various purposes. Their trade has increased very much during the past year, and they are not only selling in this country, but are building up a foreign business as well.

The plant of the Pittsburg Paving Brick Company at Pittsburg, Kans., was completely destroyed by fire Christmas morning, a Christmas present not much appreciated by Robert Nesch, president of the company, who writes that the plant will be rebuilt at once. The new plant will be equipped throughout with modern machinery and appliances, and will be operated by electric power instead of steam.

The Atlas Brick Company has been formed to take over the old Bartlett yards at Roseton and Hudson, N. Y., sold recently to the John B. Rose interests at public sale. The company will increase the output of these plants and will be ready for business early in the spring. The two plants have a capacity of 45,000,000 brick, but this will be increased by the immediate installation of new machinery to 60,000,000.

At the regular annual meeting of the stockholders of the Winfield Pottery and Fire Brick Clay Company at Winfield, Tex., the following officers were re-elected for the year 1910: A. N. Holmes, Winfield, president; S. P. Pounders, Mount Pleasant, vice-president; J. C. Glass, Winfield, secretary; J. W. Barrett, Winfield, treasurer, and J. C. Hogue, Winfield, manager. A dividend of 10 per cent. was declared on the capital stock of \$30,000.

Jacob J. Bram, of Perth Amboy, N. J., writes that he is interested in a company that has been organized at that place for the manufacture of brick, and they are now in the market for some good second-hand machinery, including one 50 h. p. engine and boiler, dry pan, pugmill, glaze grinding mills, fifty double-deck dryer cars, turntables, switches, rails, hangers, shafting, belting etc. Anyone having anything to offer should address Mr. Bram direct, Kroeger building, Perth Amboy, N. J.

With L. L. Stephenson president, F. M. VanDensen vice-president, and L. W. Clardy secretary and treasurer, the Brick Selling Company has been organized. The offices of this new firm are in the Empire building, Birmingham, Ala., and are well fitted up for carrying on their business, which is wholesale brick business. The Brick Selling Company represents L. L. Stephenson, of Lovick, Ala., Alabama High-Grade Brick Company, of Sylacauga, the Childersburg Brick Company, of Childersburg, and the Wilpicoba Clay Works, of Ragland, Ala.

John Clem met with a painful accident at the Western Brick Company's plant at Danville, Ill., recently. He was wheeling brick across a small branch and used a board to cross on. He had made so many trips across this narrow bridge that he could cross with his eyes shut. He was all right as long as the board was in its accustomed place, but some one moved the board and did not put another one in its place. Clem came whisking along with his wheelbarrow

and did not notice that the change had been made, and the first thing he knew he was piled up in the branch with his wheelbarrow and a broken rib or two.

The machine shop of the Philadelphia Face Brick Company, Boston, Mass., was damaged to the extent of \$5,000 by a fire recently. The cause of the fire is unknown.

Capt. W. D. Green has purchased the S. M. Johnson Brick Company's plant at Minera, Tex., and will at once put the plant in operation, manufacturing both fire brick and building brick.

Anyone looking for a safe investment in the brickmaking line is referred to the ad of "Kansas" among our For Sale ads. The plant referred to is located in a growing town, and is a money-making proposition.

Schneider Brothers' brick plant at St. Joseph, La., was completely destroyed by fire last month. The cause of the fire is unknown. The loss is partly covered by insurance, and the plant will at once be rebuilt.

The plant of the Elmira Shale Brick Company at Elmira, N. Y., was badly damaged by fire the day before Christmas. The flames were principally in the large brick kiln sheds adjoining the main building. The origin of the fire was, beyond any doubt, incendiary. The kilns, which were burned, contained 300,000 brick at the time of the fire.

The Marion Machine, Foundry and Supply Company, of Marion, Ind., manufacturers of the Rust clay feeder and the Marion flue blower, has had a very busy season. The plant is now being rebuilt and new machinery being installed to enable them to handle their increasing business more expeditiously. One of their recent shipments was a carload of machinery to the Weiser Brick Works, of Weiser, Idaho.

Howard M. Stafford, president of the Georgia-Carolina Brick Company, of Augusta, Ga., was elected president of the Augusta Chamber of Commerce at the annual meeting of that body, held January 5. Mr. Stafford writes that he does not expect the duties of his new office to keep him from the Pittsburg convention, and that he is planning not only to come himself, but to bring some of his neighbor brick-makers with him.

W. L. Ensign and Frank Pedirck have organized the Sanitary Glass Facing and Brick Company at Columbus, Ohio. The company will manufacture a glass facing for bathrooms, toilets, kitchens, halls, etc., and already have some good contracts under way. This glass facing is used to take the place of enamel brick and costs about the same. It is made of opalescent glass, and when completed the walls of a room are in one solid piece.

Stewart Hill was instantly killed at the Salt Lake Pressed Brick Company's yards near Salt Lake City, Utah, recently. While laboring in the mouth of a tunnel he was struck by a car loaded down with clay, and his life crushed out beneath the walls of the tunnel and the heavy car. He was digging in the tunnel when he saw the loaded car coming his way. On the right of the track is ample space, but in mistake he stepped to the left and was killed, although the driver cried to him to get out of the way of the on-coming car.

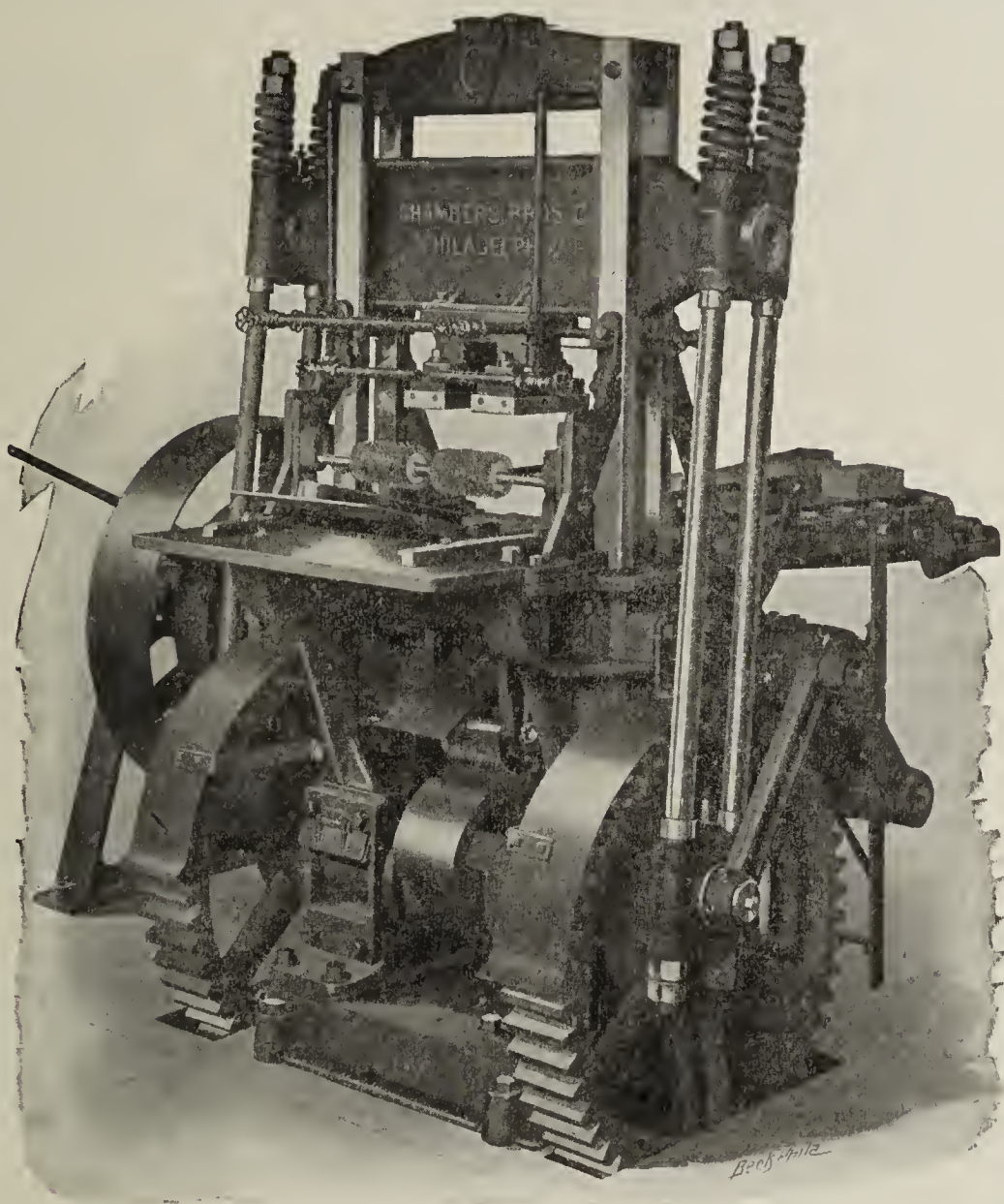
Ebenezer Fippen, of Elwood, Ind., has brought suit in the Superior Court against the Anderson Foundry and Machine Works, Anderson, Ind., claiming \$5,000 damages for personal injuries. On May 30, Fippen was working on a Berg brick machine. The machine suddenly stopped and while Fippen was down along side of it trying to locate the trouble, it started up as suddenly as it had stopped, so it is alleged. When the machine started an iron shaft struck Fippen alongside of the face, breaking his upper jaw and crushing his cheek.

The Los Angeles (Cal.) Pressed Brick Company prides itself on the possession of numerous medals from national and state expositions as proof of the excellence of the product it supplies for architectural appearances. Its latest achievement was at the Alaska-Yukon Exposition in Seattle, when it competed with the largest northern and eastern concerns and secured the largest possible reward, the grand prize. The company has an earlier prize reward, having received the gold medal at the Lewis and Clark Exposition at Portland in 1905, a silver medal at the Louisiana Purchase at St. Louis in 1903, and the first prize at the California State fairs at Sacramento in 1907, 1908 and 1909 for pressed brick and fire brick.

End-Cut or Side-Cut Street Pavers

CHAMBERS THE LINE MACHINES

For Both Methods of Manufacture.



KEYSTONE REPRESS.

A direct acting Crank Press, with a very smooth and easy feed and delivery mechanism in exact time with the pressing machinery.

A strong and powerful press with shaft diameters and all wearing surfaces of liberal dimensions. Cam roller $5\frac{1}{2}$ inches diameter on pin of large diameter and of easy access. Hardened steel faced cam.

CHAMBERS BROTHERS COMPANY,

PHILADELPHIA, PA. CHICAGO, ILL.

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NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

Written for THE CLAY-WORKER.

BY THE LIGHT OF THE KILN FIRE.

Municipal Matters—The Colonel Discourses on the Whyfore of Certain Paving Logic.

The Colonel sat with his feet on the desk, with a good cigar in his mouth, blowing rings of smoke like a man who hasn't made any New Year's resolutions and was glad of it, for he wouldn't have to go to the trouble of breaking them. In fact, it didn't look like there was anything troubling him at all, but when asked about the state or source of his comparative contentment with the world he said:

"Well, suh," I wasn't thinking about the source of contentment, but I was meditating rather deeply on the whyfore or the source of a logic which leads people to make a selection of a certain kind of material in the street paving."

"Well," I said, with the object of drawing the Colonel out, "to judge from appearances, you seem to have found what you were looking for with your mind's eye, and, if so, I wish you would tell us about it, because it is certainly a puzzling matter to the brick manufacturers of the present time why it is that certain other kinds of paving material are selected and used, when people could have brick paving, and by all the best logic the paving brick manufacturers have been able to figure up, there is nothing that beats a good brick pavement for either street or road."

The Colonel smoked on for about a minute in silence, and then, apparently ignoring the question for the moment about paving, got off this: "When I see anything peculiar about a hoss, I look up his sire and his dam, and if I don't find the cause for it there I go tracing back through his ancestry until, somewhere, I do find something or some combination that accounts for the peculiarity, and it is more frequently found that this peculiarity originated way back than from some visible or nearby source."

"I do not doubt you are right on that," I replied, "for you are a recognized authority on horses, but I don't see the connection between horses and pavements, unless you are going to tell how the horses slip in the winter time on an asphalt street."

"No, suh, you don't see it right now," the Colonel replied, "if you did I wouldn't have the pleasure of showing it to you by telling you about it, but there is a connection in logic as I will hereby illustrate. You are puzzled, and many a man in the brick business is puzzled just as I have been, to account for why it is that the people will pave a street with asphalt, for example, when they could just as well pave it with brick, and have a job that would last a while. In seeking for the cause of this, and, not finding it in the direct connection or near home to the street, I have been going back further into the subject and making a study of municipal affairs, and the manner in which street construction is provided for. I don't know how it is in some places, but, taking our own city, I find that the original street improvement is made by the city, and paid for by the property holders along and adjacent to the streets being paved. There is, of course, a certain amount of red tape or petitioning on the part of property holders, and in this I find that property holders can exercise a certain amount of choice as to the kind of pavement that may be desired."

"Now, suh, bear this in mind and follow me for a while, and it is easy to see how, when a property holder faces a problem of paving a new street, about the first thing he wants to know is how much it will cost. To do this, they naturally get a set of figures saying that asphalt will cost so much a square yard, brick so much, and granite so much. Usually, asphalt is the lowest given in the estimate, brick next, and granite higher. Then along comes the asphalt man, and not only tells him about the lower cost of the asphalt, but he takes the property holder off and shows him a nice new asphalt street, smooth as a floor, and over which a buggy or automobile runs so easily that this inviting feature, taken together with the lower estimate of cost, so appeals to the property holder that he says asphalt."

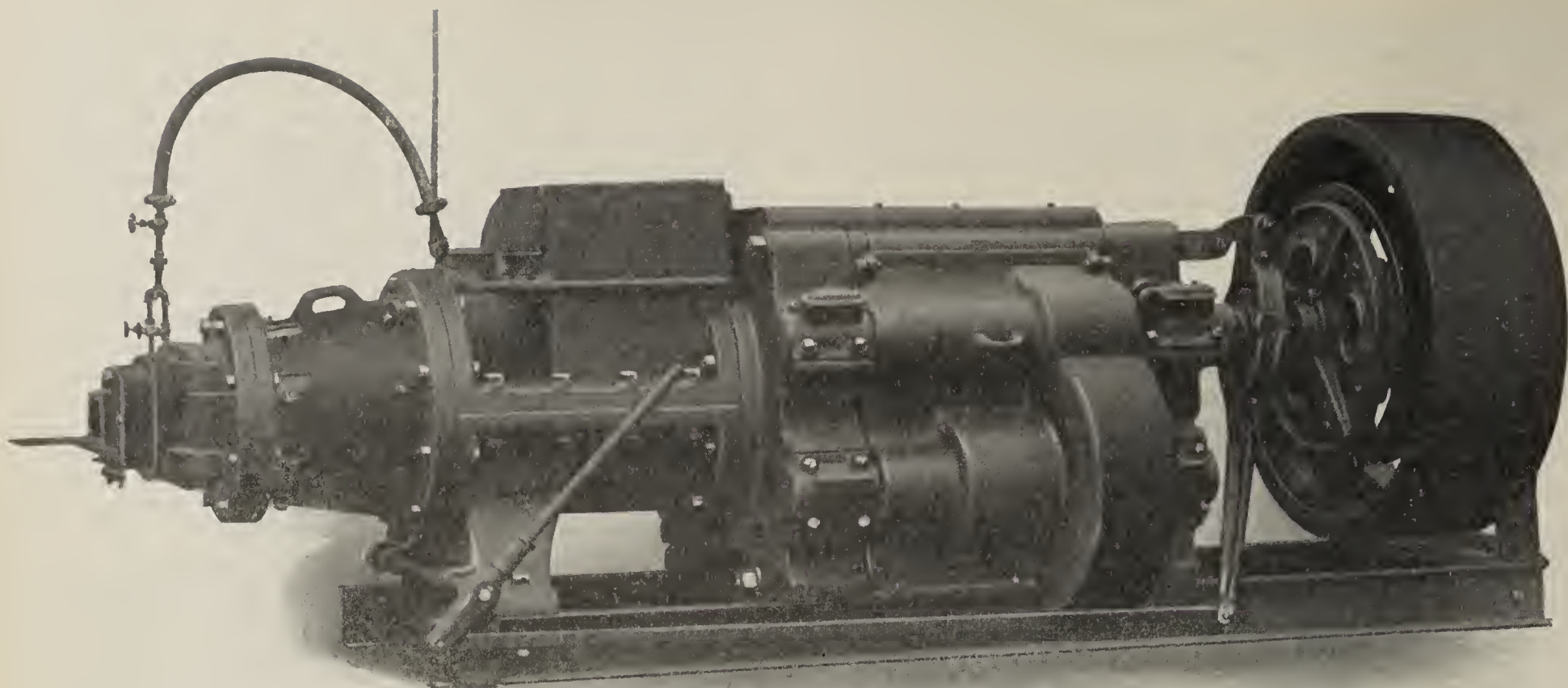
"But right here, Colonel, allow me," I interrupted, "to explain that brick people are not asleep, and while the asphalt

people may come along and work this matter of first cost on property holders and city fathers, too, if nobody is talking up for the other side, they don't do it without hearing from the brickmakers, too, and I know that the advocates of brick paving go to the trouble of showing property holders and city fathers, too, that asphalt paving is really about the most expensive going, when it comes to real figures, which includes the cost of maintaining as well as that of laying. It is true that the first cost of asphalt is, at times, the cheapest, but not always, for it depends on the location and the availability of brick as compared to asphalt, but even where the cost of brick is highest and asphalt lowest there is, in the end, if you will figure 10 or 15 years' wear, a sight of saving by taking brick. Asphalt, you know, soon wears into holes, and after they begin to patch it there is nothing but holes from that time on, nothing but expense and rough riding, so that it really becomes the most expensive of paving material, and you can bet that the brick people don't fail to inform all those concerned about this."

"That's all right, young man, that's all right, but you're like a frisky colt, you get off ahead of the rest of the bunch, and if you will pull rein awhile I will explain to you. As I just informed you, the original construction in street paving in our city is paid for by the property holders, or rather is paid for by assessing the property holders in a certain ratio along the lines of paving, but now here comes the secret to the thing after that. After the original is made and paid for the city does the repairing. It is true that, indirectly, the property holders pay for it, but they figure that they have to pay a certain amount of street tax anyway, and it don't make any difference if a little more repairing has to be done on this stretch of street than on some other, as everybody helps to pay for it, but the original construction falls so heavily on them that they look at it more than the cost of repairs. So now you can see where your repair argument looses the main volume of its weight."

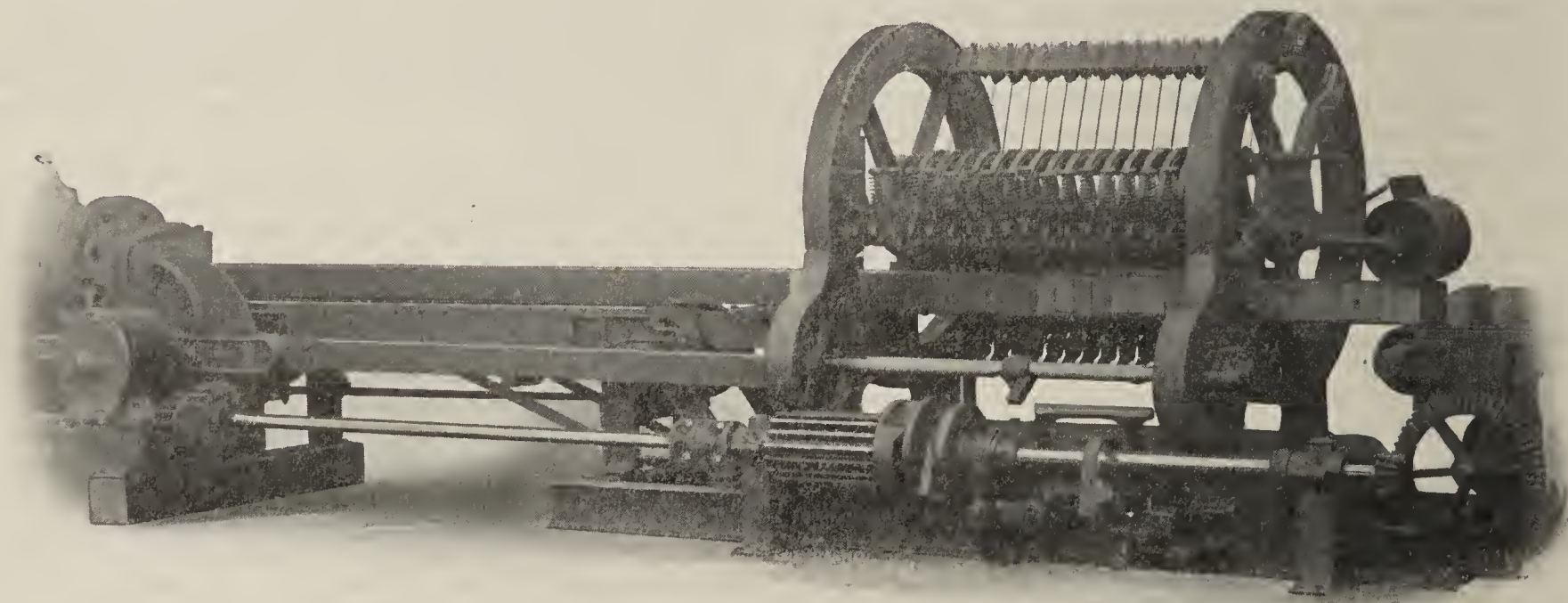
After seeing the Colonel's view point, I came down as gracefully as I could, and, after telling him that it was a horse on me, and offering him a fresh cigar I asked if he had any suggestions to offer that would help the cause, by removing to a greater distance from the property holders directly connected this temptation to sacrifice lasting qualities to first cost.

"Now suh," the Colonel replied, "you are getting down to it right, and beginning to ask some deep questions that I enjoy, but can't always find answers to. To devise anything that is perfect, even a perfect system for raising funds and constructing highways, seems to be among the impossibilities. We get things that are good, and then seek for others that are better and so on, but we never attain perfection because, suh, perfection is one thing that has never been given to humanity ever since Adam and Eve were driven out of that pleasant garden. But while we can't get perfection, there is awlays a chance to get better, and it does look like that sometimes in some places there is a chance to improve the matter originating and developing highways in construction and pavement. Sometimes I think that we might borrow an idea from our methods of maintaining public schools, and make use of it in our street work, for a street is certainly useful to the entire public, and the entire public benefits from it, just the same as it does from the public schools. The uptown dry goods store drives its delivery wagon over the street in front of your place, and, consequently, gets some of the same benefits that your corner grocer does, and every man any every team that has occasion to cross the town has occasion to make use of the street and is benefited by good paving, and everyone should contribute in some measure toward the pay of every foot of street. The great trouble is to measure out each man's share of expense according to his benefit. That is one of the impossible things we are always trying to solve, and the whole question involves too much argument on different sides and points for me to attempt an elaboration on it now, but now I have given you both a hint and a little suggestion, and I think that that's about as much as you are entitled to at once, so you take that and smoke it, and see what you can make out of it."



COUNTER GEARED BRICK MACHINE

This is an example of our counter geared Auger Brick Machines which we are building in a variety of sizes and capacities to suit all needs from the smallest to the largest brick plant and for the manufacture of either building, paving or fire brick, hollow brick, building blocks, fire proofing, etc.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY,

GALION, OHIO.

Mention The Clay-Worker.

See ads on pages 101, and 190 to 193,

Written for THE CLAY-WORKER.

CARE OF MACHINERY IN WINTER.

SOMETIMES there is need to exercise more attention and care toward machinery in the clayworking plant during the winter months than while it is in busy operation in summer. This applies not merely because during the winter shut-down is the time to make repairs and alterations, but also because of the fact that more damage may be done to machinery through rust and neglect while standing idle than is done through wear and tear while in operation. Where a plant is shut down for the winter, if you simply lock up things and abandon it until spring, there will be more or less of the equipment and tools carried away and scattered about from one cause and another, but this is merely incidental to the damage that may happen to the machinery itself if it is not put in proper condition to be stored away, so to speak, and wait until it is needed again. Everything from the engine to the clay conveyer should be cleaned up and put in proper shape to stand in idleness for some time without damage, and also it should be so well housed as to be protected against the elements.

One of the best places to begin when you go into winter quarters is on the roof of the buildings and put them in good order, so that there may not be leaks that will do damage. Water leaking through the roof and dropping on to either machinery, belts or supplies of any kind may do lots of damage, and a good first step toward safeguarding machinery is to make sure that all roofing is in good order. Then it may be advisable to cover some of the machines with canvas, also, or tenting of some kind, after the machines have been cleaned and put in good order, to safeguard them against rust.

One good plan, if the main building itself is not well heated so as to be comfortable, is to have a shop or separate workroom into which the belting and small parts of the machinery may be taken where it is comfortable, and it can be put in proper order deliberately and not in any hasty or half-hearted way.

In cleaning machinery all the damp clay should be removed and all the dirt from all parts of the machines, and make a general clean-up as if it was to be offered for sale again. Then, by the use of oils and paints and various things calculated to resist moisture and prevent rust, put them in shape to stand. Then there is the belting that should be removed if the machinery is to stand for any great length of time, and cleaned and rolled up and stored away in a special room or warehouse where it will be free from damage. The best way to handle this is not to cut off the belts and roll them up indiscriminately so as to get them out of the way, and put off cleaning and repairing them until you are ready to start in the spring, but clean the belts and put them in nice order as you take them off and put them away. If there is patching to do, do the patching. If there is some of the belting that is worn out and must be replaced next season, make a note of it and have new stock ready ahead of time. In short, take a whole lot more time about dismantling and going into winter quarters, that you may save time when it comes the season to start again in the spring.

Then, one may continue, do babbitting, make a note of worn pieces that need replacing and get the orders out for them so as to have them on hand in plenty of time, and get everything in such shape that only a little work would be required to start it, and above all when you do start in the spring you will have your plant in better shape even than it was when you closed down in the winter. Do not allow loose piles of dirt and clay or trash to lie about the place, or partly cover up bases of machines or belting, but make a thorough house-cleaning of it. Get rid of all trashy accumulations, and not only sweep out, but where necessary go over the machinery, wash it, and then dry it thoroughly, but get it clean. Get it free from all moisture and then protect it with oil or some other substance that will help keep off moisture and rust. To keep metal parts of machinery from rusting almost anything of an oily nature that will adhere

to metal is of some benefit, and different people have various likings among substances with which to coat over. Some use a form of paint, some one thing, and some another. Your machinery supply man should be able to furnish something that will answer the purpose well. Also, something that can be removed from bright work in the spring without serious trouble.

A. B. C. GIVES HANDSOME PRESENTS TO EMPLOYEES.

Pursuing the custom established three years ago, the American Blower Company, of Detroit, Mich., last Christmas presented each employe with a sum in crisp new dollar bills, equal to the number of years of continuous service with the company. Along with the money was given an illustrated booklet containing a short historical sketch of the institution of which the employes form such an important part, and all enclosed in an envelope decorated in holiday colors.

That the employes were well satisfied with their gifts there is little doubt, and we believe the company will receive the reward for their generosity through the best work the men can offer for the impetus supplied by the knowledge that they are working for a company which has the employes' welfare in mind.

STATUS OF PRODUCER-GAS PLANTS.

From a press bulletin of the U. S. Geological Survey we learn that more than 500 producer-gas power plants ranging in size from 15 to 6,000 horsepower are now in operation in the United States. About 88 per cent. of these are running on anthracite coal, a few on anthracite or coke, and the remainder on bituminous coal and lignite. In a bulletin on the recent development of the gas producer power plant in the United States (Bulletin 416), just issued by the Survey, R. H. Fernald, consulting engineer, says that the internal combustion engine has already become a serious rival of the steam engine in many of its applications, and the development of the large gas engine within the last few years has been extremely rapid. Only nine years ago, a 600-horsepower engine exhibited at the Paris Exposition was regarded as a wonder, but today four-cycle, twin-tandem, double-acting engines of from 2,000 to 3,500 horsepower can be found in nearly all well-equipped steel plants, and some plants in this country contain several units rated at 5,400 horsepower.

Mr. Fernald attributes this advancement quite largely to production of cheap gas from fuel, and the work done by the Survey in its testing plant in St. Louis and Norfolk in demonstrating possibilities in this line has done much to further the progress.

The bulletin, which contains charts showing the growth of producer-gas plants and the location of the plants now in operation, may be had free of cost by applying to the Director, United States Geological Survey, Washington, D. C.

TRADE NOTES.

The Southern Brick Company, Athens, Ga., want to buy a small size second-hand steam shovel.

F. Seitter's Sons, Philadelphia, Pa., write that they are in the market for 6,000 steel pallets. Would prefer second-hand pallets, but they must be in good condition.

A real bargain in the way of a well-equipped soft mud brick plant is offered for sale by Smith & Yager, Indianapolis. For particulars in regard to same, read ad. in our For Sale columns, and then write the above-named firm.

Denison Brothers, owners of the Ohio Clay Company's plant at Cleveland and the Delaware Clay Manufacturing Company's plant at Delaware, Ohio, after an experience of nearly thirty years in the manufacture of hollow clay ware, will, in the spring, build their eighth plant. The new plant will be built at Cleveland, Ohio, and will be of large capacity and embody several new features, and is expected to be the banner plant of the country for low cost of production. They will manufacture Denison's interlocking building tile and other hollow clay building material.



DO YOU MAKE WIRE-CUT BRICK?

If so, it will pay you to investigate

DUNN'S PATENT ATTACHMENT

For making high class side-cut brick. The same device also makes wire-cut lug brick with round edges, all kinds of the finest face brick, and standard size paving brick.

This device will be exhibited at Pittsburg the week of the N. B. M. A. convention. A full sized brick machine equipped with Dunn's Cutting Device will be in operation, making standard size brick.

It will pay **you**, Mr. Brickmaker, to investigate this device, and you are cordially invited to do so. The inventor Mr. F. B. Dunn, will have headquarters at the Fort Pitt Hotel where he will be pleased to explain the device in detail, or to escort those who wish to see the machine in actual operation to the Exhibition room in the Phipps Power Building, Duquesne Way near Sixth Street.

If you can't come and witness the exhibition, write for particulars to

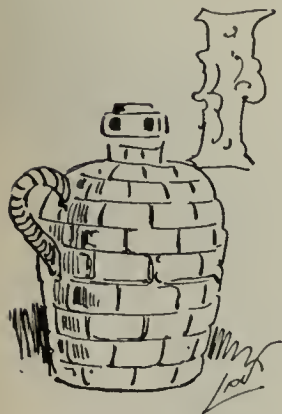
THE DUNN WIRE-CUT LUG BRICK CO.

Conneaut, Ohio.



Written for THE CLAY-WORKER.

POTTERY NEWS.



IT CAN BE SAID with a degree of certainty seldom expressed, that the outlook in the pottery trade, as it has to do with china, semi-porcelain, "C. C." and Rockingham wares, is brighter at the beginning of the present year than at any similar period in a decade.

When the almost unbearable stringency of the money market swept the country not long ago, many of the firms in the East Liverpool pottery district, which embraces more than eighty factories,

were hit hard, but it may be said to the credit of the men at the head of the several institutions, not one of them was compelled to "give up the ghost." This is considered remarkable, since the pottery industry was one of the great sources of supply drawn upon from every section of the country, and when the embarrassment came many of the firms were ill-prepared for the lack of patronage and consequent money shortage. All have weathered the storm and those who exerted the greatest effort to sidestep the bankruptcy court in those strenuous days are all the more blessed by encouraging prospects for the immediate future.

For some time previous to the first of the year the factories in this district were running reasonably steady. Orders were good and of such dimensions as to indicate the jobbers and big dealers saw something good in the months to come. This deduction has been justified in every particular since early in the month. Manufacturers of East Liverpool, Wheeling, the Beaver Valley and Akron report that the next two years will be better and more prosperous than at any time since the present tariff schedule went into effect.

Congressman James Kennedy, of the Eighteenth Ohio district, was instrumental during the long and tedious framing of the Payne tariff bill, in having inserted in the pottery schedule a clause which provides for a more equitable and vastly fairer means of striking the valuation of foreign pottery products intended for the American market, and upon which a duty must be placed. Under the old McKinley schedule, and later by the provisions of the Dingley bill, the importer was relied upon to give a truthful statement as to the contents and value of each package of ware brought in from England, Germany and France. It is charged by Congressman Kennedy that many of these men were unscrupulous enough as to misrepresent and often actually falsify concerning these important matters. For example, he says a crate or large cask—perhaps an entire consignment—of valuable ware would be brought in upon the statement that it was the most inferior grade of the foreign product. Thus the importer would be receiving the benefit of the difference in the schedule between first-class ware and that set for the cheapest crockery on the market.

The clause drafted and inserted in the Payne bill, after much difficulty, provides that the basis for fixing the tariff rate after reaching America shall be determined by the actual market price of the foreign product at home. Furthermore, the customs officials of the United States Government shall be empowered to set that valuation after carefully investigating the conditions and trend of the foreign market. It is said by officials of the United States Potters' Association, which closed its annual convention at Washington early last month, that the benefits accruing from the adoption of this amendment will be incalculable.

Mention of the annual convention of the national body, made up of more than 95 per cent. of the American manufacturers, recalls that it was the most successful in the history of the organization. It is stated that much more time and attention was given to clay bodies and superior mixtures on this occasion than ever before. Heretofore a great amount of time has been spent in the whipping out of matters pertaining to decorations. The new departure is

taken to indicate that the quality of American ware will be better, and the natural consequence is plainly a boom for the clay producers.

The elevation of Hugh A. McNicol, owner of the Potters' Co-operative Company, of East Liverpool, to the presidency of the United States Potters' Association, will be gratifying to all who are interested in clay and the development of the vast resources open to men who are interested in that line. Mr. McNicol is one of the heaviest buyers of all grades of clay in this section. In his factory, while not so large or modern as several that might be named, he makes a more varied assortment of clay products than any other manufacturer in this district.

While there has been little of which to complain in the condition of trade among brick and sewer pipe men along the Ohio valley, it is reported that a majority of them could have handled a much larger volume of business than has come to them during the latter half of 1909. Prospects for the next year seem unusually bright, however, and all are looking forward to a strong, steady demand in the early spring. Inquiry carefully set on foot recently has elicited the information that no less than twenty municipalities in eastern Ohio and western Pennsylvania have issued bonds to an amount aggregating several millions of dollars for street paving. It is an interesting fact that with but few exceptions all of this paving will be of brick.

Thomas Hayden, said to be the dean of brickmakers, glaze makers, and who has had a considerable experience as a decorator, is the inventor of a brick finish, said to be superior to anything that has ever been placed upon the market. It is a well-known fact that no glaze has ever been made up to the present time that will positively stand the weather and wear and tear. Experts have asserted that Mr. Hayden's invention will revolutionize the trade. He is just now engaged with a number of Pittsburg and East Liverpool capitalists in an effort to organize a company with a view of placing his invention upon the market.

William L. Taylor, eldest son of Col. John N. Taylor, of the Knowles, Taylor & Knowles Pottery Co., died this week in Tampa, Fla., where he had gone with his wife and little daughter in the hope that his health might be benefited. He was thirty-nine years of age and had been identified with the pottery industry in East Liverpool and Chester all his life. His wife and two daughters survive. Mr. Taylor was one of the founders of the Taylor, Smith & Taylor Pottery Co., erected several years ago at Chester, W. Va. He was successful there, but returned here to take up the active management of the big plant in East Liverpool in the interest of his father. He was so engaged until his fatal illness, which resulted from nervous breakdown.

The Dresden Pottery at Salineville, Ohio, which has been idle and in the hands of a receiver in the person of Supreme Clerk John S. McNutt, of Columbus, Ohio, for the past year, is to be sold next month.

TOM POTTER.

East Liverpool, Ohio, January 13, 1910.

Stolp & Wiederhold

CERAMIC ENGINEERS

PRACTICAL ADVISERS. SPECIALTY—
ROOFING TILE. REMODELING AND
EXTENSION OF BRICK PLANTS.

OFFICE

82 ILLINOIS ST. CHICAGO HEIGHTS, ILL.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—Position as superintendent or burner on a building brick plant. Am thorough in all its branches. Address
M. C. WILLIAMS,
701 N. Gibson street,
1 2 cm Princeton, Ind.

SPLENDID OPPORTUNITY.

To buy an interest in or entire pottery plant manufacturing utility and art ware; superior clay; unlimited quantities free for three years.

HOT SPRINGS POTTERY CO.,
12 2 dm Hot Springs, Ark.

FOR SALE, CHEAP—Revolving cylinder clay or sand dryer, Cummer & Son, manufacturers; capacity, 80 to 100 tons dry material in ten hours. Only used short time; good as new. Changed to shale, don't need it.

MACKLIN & STEVENSON,
12 2 cm McVeytown, Pa.

BUSINESS OPPORTUNITY.

We have a splendid opening for either a superintendent who can get results in stiff-mud plant making face brick, or sales manager who can take stock in company and push. Business organized and going. More capital desired. Orders more than capacity at present. Address

BOX 1—B. C.,
1 1 cm Care Clay-Worker.

BRICK PLANT FOR SALE.

Controlling interest in dry press shale brick plant. Modern equipment with unlimited supply of material. Live Illinois city of 10,000, where new industries are being established and population increasing very rapidly. No competitor in county, four railroads, and good rate to big city. Rare opportunity to secure management in a going concern with a small outlay.

Address BOX 1—R. L.,
1 1 cm Care Clay-Worker.

WANTED.

Thoroughly experienced man as assistant superintendent of old, high-class clayworking establishment in the east. Good general knowledge of up-to-date methods along practical, technical and mechanical lines. Give experience in detail, also age, salary expected and references.

BOX 1—ALPHA,
1 3 d Care Clay-Worker.

FOR SALE—Two hundred to 300 No. 124 Atlas double-deck cars with wood decks, 24-inch gauge.

125 double-deck cars with steel decks, American Clay Company's No. 127, 26½ inch track gauge.

100 double-deck cast iron cars, heavy pattern, 25-inch track gauge.

1 Eagle repress.

1 Richardson repress.

1 four-mold American dry press.

All of above in good condition.

BOX 1—O. C.,
1 1 L Care Clay-Worker.

WANTED—Position as superintendent by a brickmaker of fifteen years' experience. Stiff or soft-mud, up or down-draft kilns. Am machinist by trade. Address

BOX 1—S. H.,
1 1 cm Care Clay-Worker.

FOR SALE.

One 9-foot dry pan, iron frame.

One revolving screen.

T. B. TOWNSEND BRICK AND CONTRACTING CO.,

10 tf d Zanesville, Ohio.

FOR SALE—One Martin sand-mold brick machine and pugmill, high-speed disintegrator, repress and return steam trap. All as good as new for \$400 or separate upon inquiry.

PORT ALLEGHENY BRICK CO.,
1 1 c Port Allegheny, Pa.

FOR SALE AT A BARGAIN.

Controlling interest or complete ownership in face brick factory, forty miles from Pittsburg. In full operation and making money. Established trade. Capacity, 35,000 daily. Address

BOX 1—C. H.,
12 3 cm Care Clay-Worker.

WANTED—Manager for a brickyard in Florida who understands red clays, burning of refractory clays in continuous kilns, and has had experience in manufacturing facing brick and terra cotta. Write, giving full particulars and stating salary.

JACKSONVILLE BRICK CO.,
11 2 d Jacksonville, Fla.

FOR SALE OR TRADE.

One Martin soft-mud brick machine; cost \$450 when new. Capacity, 25,000 brick per day. Used two seasons. Will trade for anything useful or sell on time with note at good security. Reason for selling, we are installing stiff-mud machinery.

Address BOX 1—LEWIS,
1 3 cm Care Clay-Worker.

WANTED—Situation as superintendent or manager of a clayworking plant. Applicant has practical experience in the manufacture of face and paving brick, stiff-mud process, hollow goods, sewer pipe, drain tile and electrical conduits. Also technical training in other branches of the clay industry. First-class references.

BOX 1—L. S.,
1 4 c Care Clay-Worker.

FOR SALE.

One 30 h. p. boiler and 25 h. p. engine, Leffel Water Wheel Company's make.

One extra heavy Quaker brick machine, with belts, shafting and conveyers.

One Quaker sander and Quaker or Wellington five-leaf dump table.

Three Raymond single-deck, ten pallet trucks, nine brick trucks.

20,000 five-eighths, three-board top and three-cleat white pine pallets.

15,000 33½-inch by 10-inch, 5,000 32½-inch by 10-inch pallets, made by Mershon, Eddy, Parker Co., Saginaw, Mich., and racks for same, consisting of white pine posts and cleats. These racks are double posts. Rooves and dashes for same and enough grate bars and kiln doors for thirty-six arches.

The plant has been running for five years and is in A No. 1 condition. Anyone buying this plant and living within a radius of 400 miles will be paid their fare both ways.

CHAS. E. GRUBE COAL CO.,
1 3 dm Springfield, Ohio.

FOR SALE.

Two second-hand American Clay Machinery Co. No. 2 automatic cutters.

One Western Wheel Scraper Co. No. 2 jaw crusher.

HYDRAULIC PRESS BRICK CO.,
12 tf d Brazil Branch,
Brazil, Ind.

FOR SALE—Brickyard within easy hauling distance of Chicago. Thirteen acres; well-equipped plant. Would lease or make good proposition to man to make investment and run the plant.

FRANCIS LASLOW,
79 Walnut st.,
Oshkosh, Wis.

FOR SALE—First-class drain tile plant.

Good machinery, sheds and kiln. Plenty of raw material and an unlimited demand for the finished product. All this season's output sold and off the yard December 24th. Quick sales and complete clearances for years past. Sold for no fault, owner has other business interests. No trades.

Address RUS LEE,
1 1 cm Rockville, Ind.

FOR SALE.

The entire plant of the Powhatan Clay Manufacturing Company. Operating continuously since 1893 at Clayville, Va., manufacturing the universally known Powhatan front bricks. The entire plant, embracing 800 acres of land, employes' buildings, store, good will, etc., is offered on advantageous terms.

Address 14 N. SEVENTH ST.,
11 3 cm Richmond, Va.

FOR SALE—Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

THE KING ENGINEERING CO.,
Richmond, Va.

FOR SALE AT HALF PRICE.

One 125 h. p. Erie City engine.

One 100 h. p. Watertown engine.

One 80 h. p. Farquhar engine.

One 100 h. p. Watertown boiler.

One dummy locomotive.

One Chambers No. 7 brick machine, end-cut.

One Chambers pug mill.

Two Chambers disintegrators.

One Chambers clay conveyer, about 40 feet.

One Raymond hand repress brick machine.

Two hundred single deck, all-iron, metal-deck, brick dry house cars.

One 60-inch fan.

One 100-inch fan.

Four thousand feet 8-pound steel rail.

Fourteen thousand feet 12-pound steel rail.

Seven thousand feet 32-pound steel rail.

All of the above in good condition.

FLINT RIVER BRICK CO.,
12 3 cm Albany, Ga.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

VOL. LIII.

INDIANAPOLIS, IND., FEBRUARY, 1910.

No. 2.



OFFICIAL REPORT OF THE TWENTY-FOURTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION, HELD AT PITTSBURG, PA., FEBRUARY 7 TO 12, 1910.

ALL N. B. M. A. records were broken at Pittsburg. The attendance was the largest yet recorded, and, on an average the delegates came earlier and stayed later than at any previous convention. The first Numerical Roster was issued Monday night, and included 201 names. The sixth and last edition was issued Friday and totaled 597 registrations. There were a few names added to the Official Roster after final copy had gone to the printer, so the Official Record shows an attendance of over 600. As a matter of fact, there were more than 800 in attendance, including the ladies, there being a large number present who did not register. This is always the case. Just why, no one knows, but there are quite a number present at every convention who for one reason or another, known only to themselves, will not sign a public register, and hence are never included on the printed roster.

The Fort Pitt proved an ideal place of meeting and, owing to the splendid accommodations and excellent service, the convention may aptly be termed one without a "kick," though, of course, there were some who could not be accommodated and had to put up at other hotels, but as a rule the delegates were cared for satisfactorily. The meeting places for the auxiliary associations proved ample.

The hotel corridors took on convention aspects early Monday. Indeed, a goodly number of delegates arrived Sunday,

and during the balance of the week buttonhole talks were the order of the day—and the night, too. The souvenir badges presented to the delegates and visitors by the Pittsburg Clayworkers' Association were admired by all and pronounced exceptionally pretty.

The National Paving Brick Manufacturers' Association maintained its reputation as a hard-working organization. So industrious were the members that one had to invade their sessions to have a word with any of them, till after their final adjournment Wednesday noon. It seemed as if Secretary Blair and the other executive officers didn't even take time to eat.

Busier still were the officials of the Clay Products Association, some of whom it is rumored scarcely slept or ate till the culmination of their labors Friday, when the new publicity organization was launched under the name of the Building Brick Association. This new child of the N. B. M. A. is a most robust infant and promises to accomplish much good for the clayworkers and builders of the nation.

The American Ceramic Society assembled at the Seventh Avenue Hotel and their sessions, operated on the twin system inaugurated at Rochester, were well attended. The elaborate program prepared by Secretary Orton was completed on schedule time Wednesday noon, so that those who desired could participate in the N. B. M. A. sessions. The latter were unusually well attended, and every speaker faced a large and attentive audience.

As in former years, the ladies graced the first N. B. M. A. session and seemed to enjoy every incident. The convention hall presented an inspiring picture. The room is one of exceptional beauty and formed a charming setting for the largest and most enthusiastic gathering of clayworkers that has ever been held.

FIRST SESSION.

Wednesday, 3 P. M., Feb. 9, 1910.

President Lemon Parker: The convention will come to order. It

has always been our custom to open our sessions with prayer to God for the innumerable benefits we have received, and I desire to introduce Dr. S. B. McCormick, Chancellor of the University of Pittsburg, who will invoke the Divine blessing upon our deliberations.



President Lemon Parker,
St. Louis, Mo.

The Opening Prayer.

Dr. S. B. McCormick: Almighty God, our Heavenly Father, we rejoice in your goodness unto us, the children of men, and in the interest which thou doest show in our affairs. We are glad that it is possible for us, as we come together this afternoon, that we may invoke our Father's blessing upon us and upon our deliberations. While thou hast been with this organization in the days past and hast helped it to accomplish its excellent purposes, we invoke the continuance of thy favor upon it, and thy guidance and thy blessing in the years to come. Thou hast put into this earth of ours riches of untold value and thou hast given unto men mental power whereby it is possible for them to manufacture these riches into various forms serviceable for mankind, and we pray thee that as these men gather together this afternoon to consult together, to consider the interests of the organization, that thou wilt bless them in the work they are doing, a work which means ultimately the subjugation of nature completely to the power and will of man, and in this thou art interested, for thou hast commanded men to bring all nature into subjugation unto himself. Therefore, we ask that thou will guide and direct and keep these thy servants, that thou will help them to accomplish the purposes of this organization today and the days to come, and

you probably know, Pittsburg is entering upon a period of great municipal improvement. We have at last a Mayor who does things. He has entered upon his public career with the determination that when he shall go out of office he will have an enduring monument to leave behind him in the form of great things actually accomplished. You will find this an interesting city. I might mention for the benefit of the men particularly that we have filtered water (laughter) and other things also. (Laughter). We are now in the proper state of progression in order that a great work may be done for this community that shall make it physically commensurate with its great importance commercially and industrially. It is a great task, because for years, I may say, our people seemed to be content to rest where they were, but of late they have begun to realize that our city was behind hand as compared with other great municipalities in this country, and it was necessary for her citizenship to become alive to the fact that we must either progress or recede, and I am happy to say the decision was the right way, and our people are realizing that Pittsburg must go forward in her career. While you are here you may see some interesting things. We have our great institutions of learning here besides our great industrial plants that have made this city famous, and we invite you to inspect them and see what we have, and we feel



First Vice-President C. M. Crook,
Youngstown, Ohio.



President-elect W. P. Blair,
Indianapolis, Ind.



Second Vice-President C. A. Bloomfield,
Metuchen, N. J.

that only things will be done that will be acceptable unto thee. We ask it for Christ's sake, Amen.

Pittsburg's Welcome.

President Parker: Gentlemen, we have with us Mr. C. A. O'Brien, representing the Mayor of Pittsburg, who will say a few words of welcome. (Applause).

Mr. C. A. O'Brien: Mr. Chairman, Ladies and Gentlemen—I am pleased beyond words that Dr. McCormick was here to make that beautiful invocation, for I was informed by your president that there was not a man in this assembly who could take his place. I am here this afternoon on behalf of his honor the mayor, and present his compliments and respects and regrets that he can not be present to welcome you. He is delighted to know that Pittsburg is growing in public favor as a convention city. Do not be discouraged by the weather, for I can say to you, as a Scotchman once said to an American traveling in Scotland when he asked him if it always rained in the Highlands, and he said, "No, it snows sometimes." (Laughter).

I said I came in behalf of the Mayor, who is so busy thinking that he can not talk, and I have a sort of suspicion that he believes I can talk without thinking (Laughter). As

satisfied that, having looked us over, you will believe with me that we have a great future before us in the way of civic development, as well as great industrial development. A spirit of civic progress is abroad and I say truthfully that in the way of charities, public charities, Pittsburg has kept step with any city in the Union, and to the women of this community vast credit is due, and I believe they have accomplished as much or more than any one else in their noble work for our public charitable institutions. We have civic organizations of various kinds that are doing their part in this movement. We have the Chamber of Commerce, composed of first class men who are getting interested in public affairs and the progress of the city. Of course, we got fooled in Dr. Cook, but there were others. (Laughter). We have a Voters Civic League that will tell you how to vote, if you do not know how. We have a civic organization which exercises a kind of a supervisory over public things, and in this way it is accomplishing a great deal of good. All of these things are in the way of progress and development, and these movements are to be commended because they help toward the great end of municipal advancement.

I am told this convention represents a vast industry in the United States, and a meeting of this kind shows con-

clusively the great progress that has been made in this country in business methods within the past ten or even fifteen years. It shows a spirit of fraternity, the good spirit of fellowship that is most wholesome in all directions, so long as you do not get into the form of a trust.

I hope that you as a body have reached a conclusion that there is nothing in class legislation for the real benefit of business, either the builders' business or any other business. The operation of equal laws is what you want. I would like to see you pass a resolution requesting the legislature of Pennsylvania to wipe off the statute books the present absurd mechanic's lien law, so-called. It don't amount to anything. It is a misnomer, the mechanic has no protection. I do not believe the man who drew up that bill understood it. All the lawyers in Pittsburg admit they do not understand it. (Laughter).

Yours is an interesting business, dating as it does from ancient times. We have been reading lately that the exploitation developments of Babylon, for example, the city that is now being resuscitated from the dust of ages, shows that brick, and pretty good brick at that, were used in the construction of houses in that most ancient city. We know that the brick business must have been in very good shape in Egypt from the extensive way in which bricks were used there, and from that time down to this brick has been a

lawyer (who is also my brother) to reply to this eloquent address of welcome. I confess when I heard the Mayor would not be here I was disappointed because we have that kind of a busy mayor in Chicago. Most of the Chicago people do not know what the Mayor looks like. One of Mr. O'Brien's countrymen, Mr. Mullaney, represents him and does it in an equally eloquent manner. My disappointment, of course, ceased when I heard the very cordial greeting from Mr. O'Brien.

It seems peculiarly appropriate that the National Brick Manufacturers' Association should meet in this city. The city of Pittsburg has for a great many years been furnishing the steel skeletons for our large buildings, while we have been furnishing the outside skin, as it were, the exterior, in the shape of terra cotta and brick. And, as Mr. O'Brien has said, the great improvement in the quality of the brick and terra cotta of recent years has had very much to do with the improvement in the general appearance of our buildings. The Pittsburg steel people and the manufacturers and dealers in brick represented by this Association are responsible for the appearance of our large buildings. The steel skeletons holding them up and our material giving them body and endurance. (Applause.)

It is not customary for the response to the speech of welcome to be long, for if the speech of welcome is long, we



Third Vice-President W. H. H. Rogers,
Rochester, N. Y.



Secretary Theo. A. Randall,
Indianapolis, Ind.



Treasurer John W. Sibley,
Birmingham, Ala.

most important feature in construction work. But the vast progress that has been made in the manufacture of brick shows the great advance that has been made in building throughout the world, but more particularly in this country. Your business is such that it really measures the progress of civilization. When you look over the land and see such buildings as the Farmers' Bank building, the Frick, the Oliver and other such buildings in this and other cities, you realize that your business measures and keeps pace with and marks the progress of America.

In conclusion I trust that your convention will be a magnificent success. I hope your deliberations will be beneficial to you individually, to your business generally, to your Association and to the public at large. (Applause).

President Parker: I will call on Mr. Herman Matz of Chicago to respond to the kindly welcome we have just received. (Applause).

Response of Mr. Matz.

Herman L. Matz, Chicago, Ill.: Mr. President, Mr. O'Brien and Ladies and Gentlemen—I am sure the Mayor of Pittsburg does not regret his absence half as much as I regret my presence, and I should be very glad indeed if I had my

have not time for a long speech in reply, and if the speech of welcome is short it would not be courteous for the response to be long. (Laughter.) It does not require any argument on my part in behalf of the Association to let Mr. O'Brien and the City of Pittsburg know that we appreciate this welcome. We have never before met in such beautiful quarters. We have never met in such large numbers at the opening of the convention. Never have we had more enthusiasm. We have more people here at the opening of the convention than we usually have at the closing. That means a great many more voices will want to be heard during the sessions of the convention. That means we have less time than usual to spare for matters not directly connected with the business of the convention. The interesting features of Pittsburg, in which we are very much interested, are things we will have to look after outside the sessions of the convention. It is therefore necessary to hurry things along that we may see Pittsburg and check up Mr. O'Brien (laughter) and see whether he has been giving us a good steer. I wish to thank the Mayor of Pittsburg through Mr. O'Brien for this hearty welcome, and assure him that we have never started our deliberations under pleasanter and more auspicious circumstances. On behalf of the Association, I will pin this

badge on Mr. O'Brien for the Mayor himself. (Applause.)

President Parker: I have a telegram here from a man you all know, a man we all love and respect, and it is not the only thing he has sent. When I point to this vase of beautiful flowers on the Assistant Secretary's desk probably most of you can call his name.

Ocean Springs, Miss., Feb. 9, 1910.

LEMON PARKER, President N. B. M. A.,

Ft. Pitt Hotel, Pittsburg, Pa.:

Temperature 65. Circulation good. Respiration easy. Able to take nourishment regularly. Best wishes for the comfort of our members during this zero weather. Keep warm and you will be happy. D. V. PURINGTON.

(Loud Applause.)

Secretary Randall: Taking up the regular routine of business, the next order is the President's Annual Address, by our worthy President, Lemon Parker of St. Louis.

Vice-President Blair took the chair during the reading of President Parker's address.

PRESIDENT PARKER'S ADDRESS.

BY LEMON PARKER.

Mr. President and Gentlemen of the Convention:

It is with great pleasure and pride I welcome you to the Twenty-fourth Annual Convention of the National Brick Manufacturers.

It is an added pleasure that Pittsburg has been chosen as our

with technical knowledge on special subjects that are beginning to be recognized as needing scientific treatment. This is very gratifying, in that it will tend to elevate the standard of our work and increase and enlarge our understanding of matters formerly imperfectly worked out by many and costly experiments.

I am gratified at the general interest of our members in the measure before the legislative bodies of the United States, calling for the establishment of a Bureau of Mines in the Department of the Interior. This measure provides for rules and regulations, and requires appliances decreasing the perils to which the miner is exposed. It will also seek to establish standards for public buildings through data obtained under government supervision, all of which will be of immense value to the general industrial world.

One of the most important moves of late is the organization of our publicity section; rightly administered it should prove of the greatest benefit to the brickmakers of the country. I believe, however, in broadcast advertising through popular magazines, rather than in the present plan of books of plans for individual distribution.

I have before me a supplement of a Sunday paper which bears all the earmarks of a paper published in connection with some New York daily, making the distribution practically national, as the same supplement probably appears in other cities as a part of a local publication. It claims to be for the encouragement of beauty in American homes, covering the field of stone, cement, concrete and wood, but no brick buildings are mentioned. A similar publication, rightly edited, could be distributed in the same way for the benefit of the brick manufacturers.

As to the immediate benefits of these meetings it is hardly necessary to speak, as our continual growth indicates they are well understood, but I feel the greatest good derived has been in the promotion of a good fellowship and understanding among the members of the organization, and a willingness to work for and help

SOME OF PITTSBURG'S GLAD HAND BRIGADE WHO



J. C. Adams,
Chairman Ladies' Entertainment Committee.



Carl Cappel,
Chairman Finance Committee.



Wm. E. Sankey,
Chairman Entertainment Committee.

convention city, as industry, activity and energy, together with natural advantages and great wealth, make it a center of the greatest industrial importance.

Pittsburg is not only a great clay products market, but it is wealthy in its clay manufacturing interests, some of them on a very extensive scale. And here we have the United States Geological Survey laboratories, fitted with special appliances for testing clays and clay products, making tests of the greatest value and importance.

Twenty-four years ago less than seventy men met in Cincinnati and formed this organization, and they must look with pride upon the result of their work in bringing together the brick manufacturers of this great country, for from this little gathering of men has grown our great organization composed of the foremost and most progressive of brickmakers.

Ten years ago I attended my first convention at Detroit, and I am greatly honored by the high office you have given me, and it is hard to express my feelings in fitting words as I stand before you with the privilege of making an address.

I speak with pleasure of the attitude of our organization towards educational institutions. Our interest in trade schools is especially gratifying where young men are taught trades that will not only tend to elevate them, but will give them a better chance to advance themselves and an opportunity to make their way through life on a higher plane, while to the employer it will mean higher grade and more capable workmen.

Technical schools also receive our cordial endorsement and encouragement, because they are turning out young men equipped

where the general welfare is concerned. There is no question but that the immense strides made in our industrial calling is due to the liberal and broad-mindedness of the men of our times. Look at the vast improvement in machinery and methods, the result of mechanical skill of the highest order and advanced business acumen; observe the way problems are attacked and the standing of American conventions of all kinds; they rank second to none in work accomplished, and conventions, with their interchange of thought and ideas, contribute largely to this progressive movement.

Some of the papers and discussions had by this organization in the past especially appeal to a practical man, such as fuel and its wasteful use. The application of waste steam, and lately the newer subject of the use of gas for power, have all been before us and are pertinent, because of the extent and importance of the data yet to be obtained.

The outlook for business is exceptionally good. There seems to be a general inclination to make extensive repairs and enlargements, and the railroads are crowded with business.

Some of you have listened for the twenty-fourth time to the address of a retiring President, and therefore discretion prompts me to make way for the more pressing business of this convention.

I appreciate the many friendly courtesies extended to me since I have been one of you, and I will always be glad to further the interests of the organization in any way in my power, and I thank you, ladies and gentlemen, for your kindly consideration and co-operation during my term of office. (Applause.)

Vice-President Blair: The next in order of business is the report of our Treasurer, John W. Sibley of Birmingham, Ala. (Applause.)

TREASURER'S REPORT.

Mr. President and Gentlemen of the Convention:

In presenting the report of receipts and disbursements for the year just ended, the Lilliputian dimensions to which our surplus has dwindled reminds me of a story that is so apropos that I must tell it at the risk of being so familiar to you as to detract from my reputation as a humorist, which I have struggled for eighteen years to maintain under the coaching of Brother Ittner:

A ducky clergyman had married two negroes, and after the ceremony the groom asked him: "How much do yo' charge fo' dis?" "I usually leave that to the groom," was the reply. "Sometimes I am paid five dollars, sometimes ten, sometimes less." "Five dollahs is a lot ob money, pahson," said the groom. "Ah'll give yo' two dollahs, an' den if ah finds ah ain't got cheated, ah'll give yo' mo' in a monf." In the stipulated time the groom returned. "Pahson," said he, "dis here ariangement's kind o' speculashun, an' ah reckon youse got de worst of it. Ah figures dat yo' owcs me a dollah and sebenty-fibe cents." (Laughter.)

So that with a surplus that has dwindled in twelve months from \$415.93 to \$90.71, unless we retrench in our expenditures, "Ah'll hab to pass de hat" at the next convention to keep the sheriff off. I hand herewith a detailed statement as follows:

RECEIPTS AND DISBURSEMENTS ACCOUNT THE TWENTY-THIRD ANNUAL ASSOCIATION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION.

RECEIPTS.

Balance in treasury, account 1908.....	\$415.93
Membership fees, 64@ \$5.00, account 1909.....	\$320.00
Membership fees, 525@ \$3.00, account 1909.....	1,575.00
Pamphlets and reports sold.....	5.20
	1,900.20
Total receipts	
	\$2,316.13

President Parker: Gentlemen, what will you do with the report?

Charles A. Bloomfield, Metuchen, N. J.: I move the report be accepted and placed on file.

Seconded by Carroll Connett, St. Joseph, Mo., and carried.

President Parker: This brings us to the election of officers, and nominations for President are now in order.

Election of Officers.

J. W. Robb, Clinton, Ind.: Mr. President, Ladies and Gentlemen of the Convention—When you look for real good things come out to Indiana. We give you the best literature of the country, we give you the best Secretary there is anywhere. We give you one of the best Senators in the United States, one we are all proud of. (Applause.) We have a great many good things out in Indiana. It is my pleasure today to name for the office of President of this Association a gentleman from Indiana. He is known to the clayworking industries of America, a man whose earnestness is only equalled by his pointedness. I want to name for this high office Mr. Will P. Blair of Terre Haute, Ind. (Applause.)

President Parker: If there are no other nominations, I declare the nominations closed.

C. M. Crook, Youngstown, O.: I move the Secretary cast

PLANNED AND DIRECTED THE ENTERTAINMENT FEATURES.



D. T. Riffie,
Chairman Reception Committee.



C. A. O'Brien,
Corporation Counsel.



Grant Dibert,
Ladies' Entertainment Committee.

DISBURSEMENTS.

Paid for programs, mailing, etc., per voucher...	\$107.55
Paid for convention report, mailing, etc., per voucher	330.71
Paid for numerical rosters, per voucher.....	47.95
Paid for membership Nat'l Ass'n Builders Exchanges, per voucher.....	50.00
Paid for badges, per voucher.....	210.00
Paid for convention expenses, lantern shows, etc., per voucher	178.95
Paid for miscellaneous printing, per voucher...	160.63
Paid for new edition standard rattler test, per voucher	19.80
Paid for postage, expressage, exchange, per voucher	212.93
Paid for clerk hire allowance, per voucher....	300.00
Paid for engrossing certificates, per voucher....	6.90
Paid for Assistant Secretary, allowance, per voucher	100.00
Paid for Secretary's traveling expenses, per voucher	250.00
Paid for Ohio State University scholarship, per voucher	250.00
Total expenditures	\$2,225.42
Balance in treasury.....	90.71
Total	\$2,316.13

RECAPITULATION.

Balance account, 1908.....	\$415.93
Total expenses	\$2,225.42
Total receipts	1,900.20
Excess of expenses over receipts.....	325.22
Balance in treasury.....	\$90.71

Respectfully submitted,
JNO. W. SIBLEY,
Treasurer.

the unanimous ballot of the convention for Mr. Blair for President.

Seconded by Ross C. Purdy, Columbus, O., and carried.

President Parker: Secretary Randall has cast the ballot and you have elected Mr. Will P. Blair for President. Nominations are now in order for First Vice-President.

R. G. Eisenhart, Horseheads, N. Y.: Mr. President and Gentlemen of the Convention—The work that is ours to do this afternoon is of great importance, not only to us who have the pleasure of meeting here in this beautiful room, but important to those who are to come after us. That our Association is in a splendid condition can readily be seen. Never in the history of this Association have the members been more prosperous, never have the prospects for our Association been brighter, and we can say without fear of contradiction that this is due to the splendid management of those in charge of our affairs. We all know and honor the man who has been elected President. He is a sort of convention in himself, but it is very important that we should have in the Vice-Presidents men equally as good as he is himself. I have in mind a man whom there is not a man in this house but will say he is one of the best brickmakers in this country, and one of the best financiers. It affords me great pleasure to name Mr. Charles M. Crook of Youngstown, Ohio, for our First Vice-President. (Applause.)

J. W. Reagan, Knoxville, Tenn.: I move we follow the usual course and that the Secretary cast the ballot for Mr. Crook.

Seconded by several and carried.

President Parker: The Secretary has cast the ballot and Mr. Charles M. Crook of Youngstown, Ohio, has been elected First Vice-President. Nominations are now in order for Second Vice-President.

J. Fred Smith, Omaha, Neb.: I nominate Mr. Charles A. Bloomfield for Second Vice-President, and move that the Secretary cast the unanimous ballot of the convention for Mr. Bloomfield.

Seconded by F. R. Carter, Peoria, Ill., and carried.

President Parker: The Secretary has performed his duty and I declare Mr. Charles A. Bloomfield of Metuchen, N. J., duly elected Second Vice-President. We will now hear nominations for Third Vice-President.

M. E. Gregory, Corning, N. Y.: Mr. President and Gentlemen of the Convention—It gives me great pleasure to bring before this great body the name of an honorable gentleman, a common brick manufacturer from western New York. It has always been our custom to elect for our officers progressive men whom we can look up to and honor. We have no better man in western New York than Mr. W. H. H. Rogers of Rochester, N. Y., and it gives me pleasure to present his name for Third Vice-President.



M. E. Gregory, Corning, N. Y.

Mr. Bloomfield: I want to express the pleasure it gives me to have Mr. Rogers's name presented for Third Vice-President. It will be an honor to this Association to have him for one of our officers. I move the nominations be closed and the Secretary instructed to cast the ballot for Mr. Rogers.

President Parker: The ballot has been cast by our Secretary and I declare Mr. W. H. H. Rogers duly elected Third Vice-President. This brings us to the nomination for Secretary.

Mr. C. A. Bloomfield: I think it is sixteen or seventeen years ago that, after a great deal of persuasion by a dear friend whom you all knew and who has been gathered to his fathers, I was finally prevailed upon to attend the convention. One of the first men that I met on entering the threshold of the hotel who extended to me the "glad hand," and who from that day to this has been my pleasure to meet and for whom I feel the warmest friendship, is today Secretary and has from the very beginning of this Association filled that office. To him and to him personally in a very great measure is due the success of this organization, and it will be a calamity when the day occurs that he is removed from the field of his usefulness. I want to place in nomination for Secretary of this Association one we all love, one we all respect and whom we delight to honor, Mr. Theodore

A. Randall of Indianapolis, and in doing so I want to move that all rules be suspended and that Miss Wallace, our Assistant Secretary, cast the unanimous ballot of this convention for Theodore A. Randall for Secretary for the ensuing year. (Applause.)

Seconded by several and carried.

President Parker: Miss Wallace has cast the ballot and you have again elected Mr. Theodore A. Randall Secretary. Nominations for Treasurer are now in order.

L. L. Stephenson, Birmingham, Ala.: It gives me great pleasure to nominate for Treasurer, for I think the nineteenth time, Mr. John W. Sibley of Birmingham, Ala. Our deliberations would not be complete without a story from him.

B. S. Fisher, Union Furnace, Ohio: I move the rules be suspended and the Secretary cast the ballot for Mr. Sibley.

President Parker: The Secretary announces he has cast the ballot and I declare Mr. Sibley re-elected for Treasurer. This closes the election of officers. I will ask the Secretary to announce the next in order.

Secretary Randall: We have to elect a member of the Committee on Technical Investigation. This committee is composed of five members, one of whom is elected each year. Mr. D. V. Purington, from whom you received the telegram and who has so kindly decorated the Assistant Secretary's table, is the member whose term expires this year. It is up to us to elect some one to fill this position for the ensuing year.

Mr. J. W. Sibley: I nominate Mr. D. V. Purington and move that the Secretary follow the usual course and cast the vote for Mr. D. V. Purington.

Seconded by Mr. Howard Chambers and carried.

President Parker: The Secretary has cast the ballot for Mr. Purington as a member of the Committee on Technical Investigation. I will ask Mr. Robb to conduct our newly elected President to the platform. Gentlemen, it gives me pleasure to introduce to you our new President, Will P. Blair. (Applause.)

President W. P. Blair: Mr. President, Ladies and Gentlemen, Fellow Clayworkers of America—I shall not attempt to express to you my appreciation of the high honor that you have conferred on me in selecting me as your presiding officer for the ensuing year. I can only say that I most heartily appreciate the honor. I do not know that I can measure up at all to the responsibilities of the position, because I consider them very great. The clayworking industry of this country is growing from year to year and in a very few years, if the conservation of our natural resources is to be properly taken care of, and it can only be taken care of by certain plentiful resources assuming the place in the commercial condition of the country to which they are entitled, I believe from the bottom of my heart and the best of my judgment that in the next few years the clayworking industries of this country will assume a proportion of immense magnitude to our commercial and material interest way beyond any possible conception on our part. I shall not take the time of this convention to make any extended speech. I simply want to promise you that, with your co-operation, I will fill the office to the best of my ability, for no President can fill the place without the co-operation of every member. Therefore, I ask it, and know that I will receive it, and I look forward to the coming year as one larger in the manufacture of the clay products of this country than any year that has gone before. I thank you again sincerely and wish the clayworking industry Godspeed this coming year. (Applause.)

President Parker: Mr. Eisenhart, will you kindly escort Mr. Crook to the platform. (Applause.) Gentlemen, this is your First Vice-President, Mr. Charles M. Crook. (Applause.)

Vice-President Crook: Mr. Chairman, Ladies and Gentlemen—Sometimes, you know, when we can not account for certain startling things, we hear the expression the "inscrutable decrees of Providence." I have sometimes thought in

making nominations we may say the "inscrutable decrees of popular convention." That is the only grounds on which I can account for my first nomination and subsequent promotion, unless it is the fact that I made a statement one time on the floor of the convention that I could not tell a story to any advantage and promised I would never attempt to perpetrate one. We know that fine works of art require neutral background. I fancy I am continued on the list of officers for the reason that they want a neutral background up here which by contrast would exemplify the beauty of the Assistant Secretary and the talents of the Secretary and Treasurer. (Applause and laughter.) I will fulfill the duties of First Vice-President as best I can, and accept the office, for it is my constant ambition to please my wife, and I know it pleases her to have me elected. (Laughter.) It is needless for me to assure you that I have the interest of the clay-working fraternity at heart at all times, and anything I can do at any time I will be glad to do. (Applause.)

President Parker: Mr. Smith, will you kindly conduct Mr. Bloomfield to the platform. (Applause.) Gentlemen, I am glad to introduce your Third Vice-President. (Applause.)

Vice-President Bloomfield: Mr. President, Ladies and Gentlemen—I am going to ask you to excuse me from making an address. I am suffering from a severe cold. Instead of coming to this convention I should have stayed at home in bed, but I haven't missed any convention since my first appearance and I do not want to make a break now. I thank you for the honor you have paid me. (Applause.)

President Parker: Mr. Gregory, will you act as escort for Mr. Rogers. (Applause.) This is your new Vice-President, gentlemen, Mr. W. H. H. Rogers of Rochester, N. Y. (Applause.)

Vice-President Rogers: Mr. President, Ladies and Gentlemen—I wish to thank you for the compliment you have paid me this afternoon in electing me your Third Vice-President. I assume the duties and will carry them out to the best of my ability. (Applause.)

President Parker: Mr. Gregory, will you also perform the same kindly office for Mr. Sibley? (Applause.) Gentlemen, this is your new Treasurer. (Applause.)

Treasurer J. W. Sibley: Mr. President, Ladies and Gentlemen—As my friend Stephenson said in nominating me, this is the nineteenth time you have honored me, and for all those times I want to thank you for your kindness and partiality, and I hope you will not take too seriously the remarks I made in my report regarding our surplus. I remember when we met in Pittsburg about a dozen years ago our surplus had dwindled down to the insignificant sum of about \$19 and the next year it bounded up to about \$500, so you see there is something in the old saying that in Pittsburg "they make iron and 'steel' for a living." (Laughter.) In fact, I have not found in this "Birmingham of the north" (laughter) any of the "tight wads" like the one I heard about recently. It was necessary for him to go to a dentist and have an operation performed on his jaw for a very obstreperous tooth. They had to give him gas, and as the dentist was rolling him back in the chair he noticed the patient had his hand tightly clasped over a piece of paper. He said, "What is that in your hand," and the patient said, "That is a check for your services; after you get me asleep you can take it away from me." (Laughter and applause.)

President Parker: It gives me pleasure to introduce Secretary Randall. (Applause.)

Secretary Theo. A. Randall: Mr. President, Ladies and Gentlemen—This is the twenty-fourth occasion of this sort that has come to me, and none of the twenty-four conventions have been more pleasant. It is indeed a delight to see such an audience as this at our first session and to know that our first roster of those present makes sure that this is to be the largest convention we have yet held. The decrease in our surplus was a matter of much tribulation of spirit to

me. I regretted exceedingly to see our balance dwindle away as it has done. It is due to the natural progress of things. Like everything else convention work has grown more expensive. In the last few years we have introduced illustrated lectures, and, like all other luxuries, once indulged in, it becomes a necessity, and these illustrated lectures have become a permanent feature of our proceedings. This and other kindred things has caused a diminution of our surplus. But just as we did before when our balance dwindled, we have come to Pittsburg, and we are going to recoup, and I believe when our convention is over and we have balanced our books we will find we have a very substantial balance. There are a good many things I would like to say, but, like some of the other speakers, I will be brief. Before closing I want to call your attention to a little incident which occurred some time ago. It happened some years ago before I had become so well acquainted with Mr. Blair. I had occasion to go to Terre Haute and, wanting to see Mr. Blair and not finding him at his office, I went out to his house. He lives out quite a distance, so I took a cab out to the house. I went to the door and rapped. An elderly, kindly-faced lady came to the door and I said, "Does Mr. Blair live here?" She looked out, saw the carriage and, with a sigh, said, "Yes, bring him in." (Prolonged laughter.) I want to thank you again for this added evidence of good faith and respect for me, and I will do in the future as I have done in the past—serve you to the best



Herman L. Matz, Chicago, Ill.

of my ability, and now, with the permission of President Parker, I am going to "bring him in." Our new President. (Laughter and applause.)

President Blair: The Assistant Secretary remarked, "That was a dirty trick," referring to Secretary Randall's story and I agree with her and I want to tell you that when I find him in that condition I don't take him home in a cab, but take him to a hotel and lock him up till he comes to himself. (Laughter.) The next on our program is the report of the Committee on Technical Investigation, by Ross C. Purdy of Columbus, Ohio, chairman of the committee.

Report of Committee on Technical Investigation.

Prof. Ross C. Purdy: The subject that has been pursued for a year or two by the Committee on Technical Investigation is drying. Last year you elected me as secretary of this committee and the work was turned over to me. A room was at once secured in one of the main buildings of the Ohio State University and properly equipped, and on the door is printed, "National Brick Manufacturers' Association." We have been trying to adopt some standard method of drying for laboratory practice. Obviously we can not take all kinds of clays or have all kinds of dryers. We must make a dryer we can use in our laboratories for drying small quantities of clays. We have found that a very difficult problem.

We have gone through various steps in this attempt to get a dryer. We think at last we have found a solution. We have now devised and have photographs of a dryer that is electrically heated in which we can place two brick full size and measure the loss of water, the shrinkage, without removing the brick from the dryer or scalepan, thus eliminating errors incident to the removing of the brick from the dryer and returning it to the dryer. The data we have obtained is only such as is usually obtained in the progress of investigation. We have not formulated any data because it is not sufficient and we are still pursuing the laboratory methods, and I wish to assure you we are still pushing that investigation. I have had several tell me of their attempts to devise a laboratory dryer that would give consistent results and correct readings. We want a dryer that will give reading in which we can place dependence, and there are those of you who can appreciate our problem.

Aside from the dryer problem, we have been investigating the various factors in the clay that affect drying. We are going to determine the limits of drying conditions the clay will stand; at what rate the clays will dry; under what conditions of humidity. Some clays we can dry in ordinary temperature. In order to know the drying limits we have to dry very rapidly. Hence we have to have perfect insulation. The dryer we have now devised is perfectly insulated,



Ross C. Purdy, Columbus, Ohio.

so we can have a very high temperature and at the most rapid rate any one clay can stand. We are also measuring the porosity of the brick in the green brick, the size and number of the pores. The pores are the avenues through which the water escapes from the interior and exterior of the brick and the size and number of the pores are very important factors. We have devised means of numbering the pores and knowing the size of the pores. We have to do this with different kinds of clays because the average clays are not alike at all. The surface clays and glacial clays, etc., all differ. We have to understand the porosity of the green brick and the peculiarity of each type of clay. We have to study the manner of weathering clay, the different methods of handling prior to their coming to us, and what would be the effect of water on the clays we have. The manner of taking the water out, either by the pug mill or dry pan, or wet pan, or any other manner of working the water into it. Whether to fill the pores or furnish additional material to float the particles in as plasticity.

We have obtained considerable data in the past year upon these topics. The effect of the pressure dies in the formation of the brick, the effect of the oil upon the surface of the brick, the degree of pulverization or fineness of the grain of the clay as it exists in the brick, the make-up of the particles; are they quartz sand or are they a more composite admixture

of rock and earth? The nature and capacity of the clay for water; how much water will the clay take up naturally from the atmosphere? We have in all these factors each clay as an individual, and we are determining these individualities of each separate clay. We have got facts of all these factors in hand, but we can not say with confidence anything concerning the drying behavior of the clays. We are trying to get a standard dryer for laboratory drying. We put our clays through there and observe its rate of drying, the conditions under which we can dry them. If we know nothing concerning the peculiarities of the clay we have to get it.

We are studying the specific heat of the clay. How rapidly will the clay give up its heat. In addition to that, we are studying the conductivity of the clay. How rapidly will the heat pass from the exterior to the interior of the brick?

We have quite a few clays in stock and we have used four or five hundred pounds of clay in this preliminary work. A large part of the clay has been used in making the tests in the dryer, and we think we have made very good progress in this time. We are confident we are going to be as successful as it lies in the power of man to be. We are seeking advice and counsel wherever we can find counsel and advice. We are your committee, you know where we are located and we would be more than pleased to have communications from you; suggestions and questions in this connection will be treated with as much courtesy as within our power. If you know of clays that have peculiar drying qualities, that will dry in one kiln and not in another, clays that are difficult to dry, see that we get a sample of that clay. We have a dozen or fifteen samples we are working now. This year will exhaust our supply.

While we have our actual data for the body of our report, yet we would like more clays, more characteristic clays, a larger variety of clays. I will be glad to answer any suggestions or questions that may occur to you. I thank you very much for your attention. (Loud applause.)

President Blair: Is there any discussion on the report we just listened to. If not, this brings us to the close of the afternoon session, unless some one has some matter to bring to the attention of the convention. A motion to adjourn is in order.

Secretary Randall: Before we adjourn, I have a number of letters from absent members of interest to the convention. We are especially glad to hear from ex-President Will Purington.

Letters From Absent Members.

WILL PURINGTON IMPROVING.

DEAR THEO.:

I am getting very much better and will go home in the spring as good as new. I hardly dare go north at this time, so will be obliged to miss the convention, for which I am very sorry. Charlie Deckman is taking his meals where I am and we also pitch quoits together nearly every day, as the fish are out in the deep water at present, but will soon be back, when everyone will be busy. With kindest regards to all my N. B. M. A. friends, I am

St. Petersburg, Fla., Jan. 31, 1910.

Yours truly,
W. S. PURINGTON.

NATIONAL BRICK MFES.' ASSN, in Convention Assembled.

Mr. Randall, Ft. Pitt Hotel, Pittsburg, Pa.:

National Association of Builders' Exchanges sends greetings and hopes for continued loyalty and success.

ALEX E. PEARSON, Secy.

Newark, N. J., Feb. 7, 1910.

FRIEND RANDALL:

Inclosed please find P. O. Money Order for \$5, three for renewal fee and two for renewal of CLAY-WORKER.

I am sorry that I can't be with the brethren this time. I sincerely hope each of the attendants may have a profitable and enjoyable meeting.

Business is good, with fine prospects for a continuance. With many kindly wishes, I am
Milledgeville, Ga., Feb. 8, 1910.

Yours truly,
J. W. McMILLAN.

MR. THEO. A. RANDALL,

Secretary National Brick Manufacturers' Assn.:

I leave for California on Monday, and for this reason am compelled to forego the pleasure of the convention. However, my brother, Chas. F. Clippert, will make an effort to attend.

Inclosed find check for \$3 for dues in the Association, which, I trust, will be acceptable.

With best wishes for a large and successful convention, I am

Yours very truly,

Detroit, Mich., Feb. 5, 1910.

GEO. H. CLIPPERT.

MR. THEO. A. RANDALL,

Secretary National Brick Manufacturers' Assn.:

Inclosed please find New York draft in your favor for \$6, being the annual dues of Association for myself and my son. Owing to matters of importance, I can not attend this year's meeting, which I hope will be one of those "better than ever" ones.

Very Respectfully,

Buffalo, N. Y., Feb. 8, 1910.

GEO. W. SCHMIDT.

MR. THEO. A. RANDALL,

Secretary National Brick Manufacturers' Assn.:

Inclosed find \$3 by draft to renew my membership in the National Brick Manufacturers' Association. I hope you will all have an exceedingly good time. Sickness in the family has caused me to remain at home. Mr. Plumb also, of the Onondago Vitrified Brick Company, is unable to come on account of sickness.

Very truly yours,

Syracuse, N. Y., Feb. 9, 1910.

C. H. MERRICK.

MR. THEO. A. RANDALL,

Secretary National Brick Manufacturers' Assn.:

I do not know that I am expected to make any report other than I have made on the National Association of Builders' Exchanges, and especially as a number of the other delegates sent by the N. B. M. A. to their meeting here at the Building Trades Employers' Association last spring are with you now and will probably make their report.

As reported to you before and as you undoubtedly know from other sources, the Building Trades Employers' Association here fully indorsed the movement of the National Association of Builders' Exchanges, but did not come into the National Builders' Association last spring because they thought they could get closer to the organizations of the large cities by being themselves with the others on the outside, and with that object in view they were to communicate with these various labor associations and in the meantime the National Association of Builders' Exchanges was to rest on its oars for the results, but the Building Trades Employers' Association's efforts were not successful, whether from lack of energy or from the apathy of those appealed to, I don't know.

I have had a number of communications from Mr. Williams, president of the National Association of Builders' Exchanges, in which he states that they (the National Association) are now taking up the work anew, and, he hopes, with more vim, and wishes me to do all I can to keep the N. B. M. A. in line, as on account of political and industrial conditions there is undoubtedly going to be, during the next twelve months a general readjusting and settling together of labor conditions, during which it would be a good time to get in the work of the Exchanges, so that it will come out of the evolution in much more prosperous and better condition. To which I have replied that, while I believe in the movement and shall be pleased to do all I can to help it, I can not commit in any way the N. B. M. A., as I am simply a delegate, sent by the N. B. M. A.

I believe the movement a good one and should, if possible, be pushed to a conclusion, so that it will be truly a national one, and through which the employer and laborer will get into closer contact to the benefit of both.

With kind regards to all, and hoping to be with you before the week is out, I am

Yours very truly,

New York, Feb. 8, 1910.

D. S. PLUMMER.

On motion, the convention adjourned.

SECOND SESSION.

Thursday Morning, Feb. 10, 1910.

President Blair: The convention will come to order. Secretary Randall will please announce the first number on the program.

Secretary Randall: Prof. Purdy has something he wishes to say to the convention.

Ross C. Purdy: I desire to report that your Committee on Technical Investigation has met and gone over the data obtained during the past year, the plan of investigation, etc., outlined for the coming year, and has given its hearty ap-

proval to the work done. I am very glad to report to that effect. In our plans for the coming year's work we have decided we would like to have several things. We want to carry out this question of drying. We will want clays. Concerning the quantity of clays, we have figured that a ton of each would be ample quantity, for in our experiments we will use considerable clay, and we will want a uniform stock from which to draw from time to time. If you will kindly let us know if you will ship us a ton of clay of the various kinds for use in this work, we will appreciate it.

Mr. Bloomfield: I will ship you a ton of our shale and a ton of fire clay, charges prepaid.

P. A. Smith, New Brighton, Pa.: Same here, Mr. Purdy; where shall we send it?

Mr. Purdy: Send it to me, Ohio State University, Columbus, Ohio. We would like the material as it leaves the dry pan. We have a dry pan, but we prefer to have it crushed because we consider it a better sample. We want all kinds of clay, surface clay, glacial clay, fire clay, and what not.

President Blair: I wish to say that the Chancellor of the University of Pittsburg extends to you a cordial invitation to visit the institution at any time either in groups or singly, as you please. The doors of the university are open to you. The first paper on the program this morning is a paper by H. C. Mueller of Trenton, N. J., on "Artistic Quali-



H. C. Mueller, Trenton, N. J.

ties of Burned Clay Products." Mr. Mueller is not present, but he has sent a paper, which the Secretary will read for him.

THE ARTISTIC VALUE OF FIRE FLASHES AND DISCOLORATIONS OF BURNED CLAY PRODUCTS.

BY H. C. MUELLER, TRENTON, N. J.

Mr. President and Gentlemen of the Convention:

The people of the United States have a keener appreciation of mechanical accuracy than any other people of the world. The reason for this trait may be found in the application of machinery for work which was done by hand in the old countries. We may also take into consideration that our pioneers had, forced by necessity, engaged to undertake work which has usually been done by especially trained mechanics, and so we may conclude that the result of this broad and general technical education was the keen eye our people have for mechanical correctness.

Our cities are as a rule quite new, and old houses showing the uncertain lines of old age are almost unknown. We were, furthermore, without the influence of really artistic handwork done before our eyes, and so we looked for "mechanical points" only when we considered quality of work, and easily condemned what did not come up to the established standard in a technical sense. In other words, we could easily discover if something was not straight or square if it showed certain unevenness of form or color, or if the strictly mechanical phase was well taken care of, without, however, being able to pass judgment on the purely artistic or decorative points of the product or objects in question.

This "standard of mechanical perfection" was applied in many cases where it could not possibly be a criterion, and it has caused a great deal of trouble in various industries.

Our own clay industry has suffered considerable in this respect,

and the manufacturer of burned clay products had to pay handsomely for the artistic ignorance and consequent education of his countrymen.

We all know that it is quite impossible to equal the carpenter or stone mason in the accuracy of his work, if we wish to imitate objects which are planed or cut out of rigid materials, and that we can never obtain the uniformity of color in our burned ware which the painter may furnish. And yet, absurd as it seems, the clayworker has been harrassed and vexed for many years by the most unreasonable demands for an impossible standard and uniformity of form and color.

The relief from this embarrassing situation is not coming through a change of heart of our "well-meaning" tormentors, or through a "letting up" on the subject, but rather through a better artistic conception and development of our nation.

And so it seems as if art even plays a prominent part in so apparently simple a proposition as the making and selling of common brick! How many brickmakers will agree to this assertion?

Would it have taken so many years of worry and actual losses of time, energy and money if the brickmaker had sufficient artistic conception to point to the positive artistic value of the variations and discolorations of his product, caused by the action of the flame and coal gases? Instead of helping the good work along he bemoaned his fate, cursed the architects, and shaded his bricks into forty different lots. He simply waited until *others* discovered the decorative value of the fire-flashed brick. It was a long wait, and I am sure that some are not quite over it yet.

The question has often been asked: What constitutes the artistic properties of fire flashes or discolorations of burned clay? Or, What are the limitations? These questions are very difficult to answer, especially as the establishment of a general standard is entirely out of the question. What may be admissible in one case is objectionable in another, and we may say that these questions involve no other than purely artistic-esthetic considerations.

A few general rules may be accepted, however, which may form at least to some extent a guide for the clayworker. These sugges-



H. E. Ashley, Pittsburg, Pa.

tions, however, must be considered in a most liberal sense. I will try to formulate a few arguments which may be acceptable:

It is essential that the discolorations are "legitimate" in every respect, that they are not the result of artificial efforts to produce or cause the same. An effort of this sort is soon detected and meets with disapproval. It may be suggested that the clayworker should try his best to get his ware as uniform in color as possible and that he place it on the market as it comes out of the kiln, without making hysterical efforts to sort it in one way or the other. Reason should always prevail. If a corner is black or if any other evident fault is obvious, no artistic speculation will help the brick, tile or piece of terra cotta.

Some colors are more delicate in this respect than others. Dark colors can naturally show more fire flashing than light materials, as the contrast of color on any piece of burned clay should not be too great. Some neutral colors or "tints" are greatly assisted through fire flashes, as their appearance will materially enliven the surface of an otherwise uninteresting and monotone object.

The "texture" of a building built of burned clay and especially of brick is its most prominent feature. This texture depends upon the size of the "units" used in the construction of the house, the mortar joints and the color of the material, respectively the variation of color. A house built of brick of an absolutely even color may have a texture as far as units and joints are concerned, but it will lack the essential feature of a texture of color.

In order to obtain some insight into the possibilities of our materials in a decorative sense, we should never tire to make actual trials by putting up sections of walls in our works or yards. Such specimens of work will act as our educators. It is quite impossible to guess at the appearance of a finished wall by examining a single "unit," no matter how much we know or think we know of the subject.

The discovery of a fortunate combination of color and texture is oft times quite accidental, and it takes, on the other hand, some time before we are sure of our judgment in respect to a

new combination. Trials of this sort, which are also of great service to architects, should be made in the open air and not only in an office or showroom, so that they may be considered in the proper light and at the same time from various distances.

The whole matter after all resolves itself into "a matter of taste," and we know that taste must be "cultivated." (Applause.)

President Blair: The next in order is a paper, "A Trip Through a Modern Pottery," by H. E. Ashley, who is connected with the clay products laboratories of the technologic branch of the U. S. Geological Survey, located in this city.

A TRIP THROUGH A MODERN POTTERY; ITS CONSTRUCTION, OPERATION AND PRODUCTS.

BY H. E. ASHLEY, PITTSBURG, PA.

Mr. President and Gentlemen of the Convention:

The pottery I will tell you about is that of the Homer Laughlin China Company, which is located in Newell, W. Va., across the river from East Liverpool, Ohio, which is the center of the white ware industry in this country. This pottery was erected four or five years ago and is now in full operation and has been for several years. It is the largest pottery in the world. The company is not the largest manufacturer of pottery, a number of foreign firms have as large capacity, but it is distributed among a number of smaller plants.

This pottery is all in one building, which is about 600 feet square. It will take a walk of about half a mile to walk entirely around the plant. The product made is semi-porcelain. That is, table ware which is made by the ordinary Eastern ware technique, and is as near true porcelain as can be made with that technique. I will not do much in the line of technique, save to give a few words which will make the meaning of the pictures clear, and we will follow as quickly as possible the progress of the ware from the time the clay arrives in the car until the finished ware is shipped from the other end of the plant.

Mr. Ashley showed a large number of views of the immense plant of the Homer Laughlin China Co., beginning as announced with the clay as it entered the plant, through the various processes of molding, slipping, decorating, burning, saggar making and burning, sorting, packing, etc., a number of which will be published in a subsequent issue.

President Blair: This has been very interesting. The Secretary will please announce the next in order.

Secretary Randall: I wish to announce that Mr. W. C. Smith of the Indianapolis Trade School is here. This school was formerly known as the Winona Technical Institute, at which a year or two ago this association attempted to establish a school or department for the education of bricklayers. They have made very nice progress, but I will leave that part to be told by Mr. Smith himself. (Applause.)

The School for Bricklayers.

W. C. Smith, Indianapolis, Ind.: Mr. President and Gentlemen of the Convention—I only expect to be here during the day, as I must leave tonight for another conference, but I wish to talk with you as much as possible, especially those who have had their "hand in the pie" up to this time. I want to tell you in the short time I have what we are doing. In the meantime I hope you will look over the pictures I have brought, and I will be very glad to answer any questions as to where our boys have gone, what they are doing and where they have made good. The number, of course, is small, but we have made up in quality what we have lacked in quantity. I am quite sure I know the spirit of this large body of broad-minded men and that you are interested in the work we are trying to do. There is not a field of endeavor in the United States today that is making the appeal that industrial education is, and I tell you, voicing the sentiment of the people who want to learn a trade and appealing to you for the American boy who has not the chance, there is no question before the American people today upon which the future industrial prosperity depends so much as this, that the 90 per cent. of the boys who leave the elementary schools without learning a trade shall be given a chance to learn that trade, whatever it may be. I am glad to say that, having had twenty years' experience in the public schools and try-

ing to get them interested in the work, they are now beginning to see the handwriting on the wall and are breaking their necks to get into this line of work. In the next fifteen years you will see trade schools springing up in every school district in the United States.

I attended the Tilemakers Association in Chicago yesterday, and that convention voted to support a department in the school for the next five years, one man springing to his feet, saying, "For the boy you sent me at Montreal, I will be glad to aid some other boy, and will give \$50," and before he had finished the convention had passed a resolution appropriating \$1,500 a year for five years to come.

The number of boys we have turned out in the brick-laying department the past year has not been large. We have graduated about fourteen boys. These boys have scattered themselves through the United States and have all made good. We have succeeded in turning out boys who could build houses—a number of them have been built in the City of Indianapolis, and the work stands up as well as any work that has been done in that city. In the back of the room is the picture of a house that was built in the heart of our city, by which you can see the sample of the work our boys are doing. During the past year two boys who have been in the department but four months have built a building for the Chicago Veneer Company, using 300,000 brick. I think it is just as necessary for this Association to go on record in support of work of this kind as it is to support the work you are doing so nobly in the technical investigation. It is quite necessary that this educational side of the work be looked after.

We have been undergoing a reorganization in Indianapolis; we expect the city to pledge \$200,000 in the next ten days to take care of the work in the next five years, during which time we expect to establish it with permanence in the hearts of the large-minded givers of which we have so many in the United States. We are anxious to see the boy who has not had a chance to learn his trade given that opportunity. My time is up and I leave this matter with you. (Applause.)

President Blair: Is there any discussion either on this matter or that of Mr. Ashley's? If not, we will take up the next number on the program, "Modern Brickyard Equipment," by Mr. Jos. L. Cite, of Fishkill-on-Hudson, N. Y.

Secretary Randall: Up to the present time Mr. Cite has not registered. This was to have been an illustrated lecture on a Hudson river modern brick plant, and I anticipated it would be one of the most interesting papers of the convention. I know Mr. Cite had his paper in course of preparation and had many of the pictures for the illustrations, and I presume before the convention is over we will have some word from him. We will have to pass this for the time being and take up the next number on the program, "Practice vs. Theory in Freight Transportation," by John F. Lent, of Pittsburg, Pa.

PRACTICE VS. THEORY IN FREIGHT TRANSPORTATION.

BY JOHN F. LENT, PITTSBURG, PA.

Mr. President and Gentlemen of the Convention:

Since the last convention, when I was privileged to present some problems of a transportation character, there have been a succession of events that have vitally affected the principles underlying the compilation of freight rates on brick. There have been and will continue to be promulgated rates for brick, based upon a recent decision of the Interstate Commerce Commission, which sets aside the precedents long established in railroad practice, whereby fire, building and paving brick industries will be assessed the same rate, regardless of the purpose for which the product is used.

That the ruling of the commission was a wise one remains to be demonstrated. That it has disrupted the fabric of brick rates and left the carrier, as well as the manufacturer, with serious problems to avoid unnecessary loss of revenue and trade, is obvious.

Since the decision in the brick cases was made, the railroads have been endeavoring to agree among themselves upon a satisfactory basis of rates that will meet the requirements of the commission's ruling, and, at the same time, conserve the revenues for the transportation of brick. Numerous meetings have been held and before long schedules applying in all directions will be published, embodying the new principle and the manufacturer of brick will be required to adjust his trade to the new figures submitted. The issues involved in the case of the National Paving Brick Manufacturers' Association were: First, to maintain a differential be-

tween fire, building and paving bricks, and second, to maintain the rate that had for years been in effect on eastbound shipments of 20 cents per cwt. from Chicago to New York.

These manufacturers have been subjected to a rate of 22½ cents per cwt. for the past two years, so that the decision of the commission, although refusing to sustain a separate rate for these various kinds of brick, ordered the carriers to reduce it and maintain, for at least two years, a rate of 21 cents per cwt. from Chicago to New York. Likewise, the fire brick and building brick manufacturers, being placed on the same basis, are to enjoy the benefits of even greater reductions. There is, therefore, in prospect, numerous changes in all directions, so that the brick industries may well be warned against contracting without securing accurate information as to the transportation cost.

The disposition of complaints continue to occupy the attention of the Interstate Commerce Commission, and the railroads are showing remarkable courage in religiously following the new principles advocated by the commission. The commission decided 591 formal complaints that were instituted in the year 1909, and many informal complaints were disposed of. So many cases have been docketed as to make it impracticable for the commissioners to take all testimony, and the majority of the cases are heard before special examiners. Considering the diversity of complaints and the investigation and consideration necessary to properly dispose of them, the task of the commission is one full of difficulty. Notwithstanding this, we find in the Twenty-third Annual Report to Congress, the commission emphasizes on the previous recommendation that its powers be enlarged. The desire to exercise control over railroad capitalization, thus regulating the amount of securities that should be issued by a corporation and disposed of to investors, as the evidence and measure of their respective interests. It has frequently been urged that capitalization exercises no influence upon rates, but if the commission's prerogatives are to be extended in other directions, to properly defend the rates which they prescribe, it is hard to conceive how Congress can ignore the natural reasoning of the commission and characterize all corporate securities as an important element in the situation.



D. F. Farnham, Seattle, Wash.

An additional amendment to the existing law would give the commission power to prevent advances in rates on their own initiative, without, as at present, awaiting the filing of a formal complaint. It is apparent that many who suffer through advances are not in position to pay the increased rates and take chances on successfully arguing a case for reparation, so that if power was given the commission to investigate and prevent any unreasonable advance, the people would be relieved of the necessity of filing complaints.

This proposal is viewed with alarm by the railroad traffic man, because it would give the commission power to overhaul and establish whenever and wherever desirable, rates and regulations which might be prejudicial and reflect adversely on railroad management. The shifting conditions of traffic necessitate the constant readjustment of rates, and, generally speaking, justify the same flexibility as the prices of the commodities shipped. The country has been drifting toward government rate-making, which is the next step toward government ownership of railroads, with increasing speed during the past few years.

There are about 200,000 tariffs filed annually with the commission, and yet it is proposed that any tariff may be held up sixty days after it was intended to become effective, on the initiative of the commission or on formal complaint, and then such adjustment made as the judgment of the commission may dictate. The conditions under which it was prepared may have in the meantime shifted, so as to require a different adjustment, and the fixed rate would possibly then require numerous other changes. Considering what a network the system of rates and classification is, and how changes at one point may require new adjustment at other points, it is plainly beyond the power of any set of officials to dictate what rates should be made from time to time to meet the ever-changing conditions.

Every railroad official should be aiming to arrive at just and reasonable rates and classifications, and if they will take the

public into their confidence and jointly agree, the solution of these perplexing problems of rate adjustment, I believe, could be worked out by practical men familiar with the transportation and trade conditions of each locality, the guiding hand of the commission disposing of matters where controversy arises.

The railroad officials have much improved on their former attitude in treating with the public and are now inviting argument at their various meetings where rates and classifications are considered. It is unfortunate, however, that so many meetings of the railroads are shrouded in mystery. The applicant for a revision of rates, fortifying his proposition with logical arguments, demonstrating its merit, does not enjoy the benefit of the arguments of the carriers, who are prone to accept all information from the shipper as to the trade or other conditions, upon which the application is based, and give in return neither arguments nor assurance of the subject until the meetings are closed. Many of the complaints that have been registered with the Interstate Commerce Commission would have been prevented by a greater exhibition of co-operation on the part of the carriers, as their rate adjusters are frequently ignorant of the trade conditions as the shipper is of the transportation conditions affecting the movements.

A substantial illustration of this is furnished by our Pittsburg district, which produces a greater volume of traffic than any other territory in the world, and yet the complaints filed with the commission from this district will not exceed half a dozen cases. A clearer understanding of transportation conditions by the producers and a greater appreciation by our local railroad officials, with a spirit of co-operation permeating the daily effort, presents an excellent example, from a practical standpoint, for obtaining the best results. We are not contented with the rate conditions, but believe an honest effort is developing to meet the requirements. There is no American community which does not look jealously upon some other community with which it is maintaining a competitive struggle for supremacy in the industrial field. These struggles are the source of constant pressure upon the railroads for readjustment of their rates. The community,



John F. Lent, Pittsburg, Pa.

which wishes industrial supremacy, must now be diligent to seek, acute to perceive and prompt to take advantage of every opportunity to improve its methods, lower the cost of production and secure favorable railway charges. Transportation subjects have received much attention from the public and the press within the last few years, and the theorist has offered explanations and remedies for every transportation ill. Men of every profession have gone out of their line to discuss and advise upon the subject, but in actual practice the competent traffic adjuster is the product of a lifetime of constant contact with transportation matters.

It is apparent to the traffic student that to avert friction between the parties in interest, the public and the carrier, a closer relation is to be recognized by both than that which is produced through the legislation that is constantly presenting itself as a remedy to the theorist. What is most needed toward this end is the open meetings of the carriers, when shippers can display their needs and convey information as to trade conditions that emphasize their demands. Then it is equally necessary that the railroads should be frank in meeting the issues and presenting real arguments, and not subterfuge for the declination of these demands.

There is much to applaud in the suggestion for an amendment to the law giving shippers the right to route their traffic. There are frequently valuable considerations to the shipper in this privilege, and while the carriers have uniformly been respecting the request of the large shippers in this matter, they have not done so generally. Aside from the value of stopping shipments in transit for certain changes in the lading, the reciprocal for railroad orders with many manufacturers is of real worth. Then, too, the certainty of route enables the prompt location of a shipment and facilitates the tracing. There are many railroad tariffs that stipulate that the shipper shall only have the privilege of selecting the delivering line, and the tonnage handled under these tariffs is juggled with connecting lines so as to influence the greatest revenue returns, leaving the shipper in the dark as to the location of his property, and circuitous routes tend to embarrass the movement.

Another reform of great consequence that is a subject for

amendment to the law is that which provides that carriers give written quotation of rates and be held liable for the protection of same, even when at variance with the published tariff. It is obvious that without a substantial fine being imposed for the error, it would afford a much easier method of giving to favored shippers unreasonable preference and rebates. The fine promises to be at least \$250 for each offense. So long as the railroad tariffs are so complicated and hard of interpretation as at present, the shipper requires this protection, although it places railroad rate clerkships at a premium. The tariffs are not in such form that the average person can readily and with any reasonable degree of certainty determine the lawful rates.

The mandate of the law is that all rates must be reasonable and just, but how the reasonableness and justice of a rate are to be determined is not prescribed by the statute, nor has any satisfactory test been evolved by transportation experts. A rate that might be regarded as reasonable by the producer, would be deemed extremely unreasonable from the carriers' point of view. There is no scientific principle for basing freight rates in this country. The reasonableness of a rate must consequently be ascertained in every instance in which the question arises by its relation both to the carrier and to the shipper, and by comparison with rates normally charged for like or similar service. The element of competition plays an important part and one of the most difficult questions for the carriers to determine is how far they may properly discriminate in view of competitive conditions. Assuming that the amount of money which a railroad ought to earn is fixed, from what source shall it derive that amount? How much shall come from the passenger business; how much from the freight; what rate shall be applied to a particular commodity as compared with the other commodities? All these are factors and many others present themselves to arrive at a proper income for the carriers. Precedent has always been an important element in the administration of railroad traffic, and a rate that has been in effect for a period of years is presumed to be reasonable and fair, although controlling conditions of competition between railroads and producers might modify this presumption.

Producers of large volume of freight have in past years been severely criticised because of the favoritism shown by the carriers, and the rebates that resulted were naturally in amounts proportionate with the volume of traffic controlled. Rebates are now unlawful, as are many of the former advantages, but these same large producers exercise an influence in the rates determined upon by the carriers, which is as potent today as in former years. It is generally considered that if the large manufacturers of a given commodity recognize a certain rate, or set of rates, as reasonable for the marketing of their product, the same should be acceptable to the smaller producer, although the latter may be seriously handicapped in reaching the same markets because of greater cost of production. The shipper in control of a large volume of freight has always, and I think will continue to be, specially recognized by the carriers, regardless of any regulation which may be imposed upon them by the Interstate Commerce Commission, and while it is true that legislation of freight rates is so influenced, and the rates when published are accessible to all shippers, it is obvious that he who can first announce a changed transportation cost to the trade has a real advantage. It is, therefore, paramount that the smaller shippers of any product, in order that they may be brought into a proper attitude in treating with the carriers, should join hands in the common good and be a factor in the legislation of freight rates. The carriers welcome reliable information of trade conditions that affect the making of rates, and an organization that can combine their tonnage strength will receive consideration which any single shipper can not hope to receive. Diplomacy is as fruitful as litigation is harmful in treating with the carriers, and the interests of the shipper and carrier being mutual, conference is the effective channel for adjustments.

Much litigation and ill-advised national and state legislation seriously interferes with the proper function of our transportation systems. It jeopardizes railroad securities and dwarfs industrial development, for unless protection exists either in the form of law or in the wisdom and sense of justice of the people, the owners of capital and those entrusted with its management will be forced to decline to risk any such undertakings. An abundance of capital is available for maintenance of our present roads and for the construction of others, but investments in this direction will be made only when reasonable revenues are secured. The public, on the other hand, are not obliged to suffer if a railroad corporation has bonded its property for an amount which exceeds its fair value, or if its capitalization is largely fictitious, such as would suggest increased freight rates, required for the purpose of realizing profits upon such excessive valuation or mismanagement. The cost of operation varying geographically, and from time to time as wages, efficiency of labor, cost of fuel and other material rises or falls, must necessarily affect the earnings available for payments to investors. The whole schedule of rates must be framed for the purpose of producing from a multitude of varying services an aggregate equal to the total expenditure for operation, materials, taxes, maintenance, depreciation, interest on indebtedness and a reasonable return to shareholders, and it is plain that the producers of any particular commodity must base their arguments for reasonable rates with a consideration for these costs, and for the returns to be derived from other commodities handled. That any commodity is in its proper relative position with the others is only determined by careful study of all the facts, and, if revision is necessary, it can only be accomplished by substantiating the claims and fortifying the position with logical arguments. It is exceedingly difficult, even in the decisions of the commission, to trace principles of other than the most general character, each particular complaint having its own peculiar circumstances. Some of the general considerations pertinent to the

inquiries that become controlling factors in determining lawful charges are length of haul, character of territory traversed, density of traffic, the direction in which the bulk of the traffic moves, quantity of similar shipments, manner of preparation for shipment, character of equipment required, special facilities necessary, risk of loss or damage, their effect upon the development of other business, value of the articles carried, special cost of service, demands upon terminals, competition with other roads, physical characteristics of road and the like.

The proper adjustment of rates, while the most important, is only one of the leading factors in transportation. Car supply has been a troublesome issue between the shippers and carriers, particularly for the movement of bulk commodities in times of prosperity. Discrimination in the distribution of cars is as prejudicial and unwarranted as the discrimination in rates. So much plausible subterfuge can be offered by the carrier for the failure to supply cars when needed, and the reasons given can not be easily substantiated by the shipper. It is obviously impossible for a railroad to supply all its shippers with all the cars required, yet nothing is more disquieting than to have a good supply of orders and large stock of brick with no cars, or at least a small percentage of cars in which to load. The old equipment being steadily dismantled and the new cars purchased by the roads being out of proportion to the increased freight traffic in this country, coupled with the fact that in times of depression the railroads neither purchase new or repair disabled cars, leaves them ill prepared to care for the demands in this respect. The larger capacity and the more substantial construction of the modern freight car should modify car shortages, of which there has been so much complaint. Motive power, terminals, additional track, etc., must of necessity improve, all of which should tend to reduce the cost per ton per mile for the movement of freight.

In conclusion, I would emphasize that the exigencies of transportation and the diversity of markets to be reached are such that to attain the best results the shipper must be informed as to what he is entitled, and, knowing this, should make persistent demands for revisions of rates and regulations such as will be recognized as just and reasonable. Properly fortified arguments presented to the officials in charge will frequently bring the desired results, and reforms sought in the spirit of co-operation, I believe, will receive liberal consideration at the hands of the carriers, and uniformly diminish the complaints before the commission. (Applause.)

President Blair: Does any member desire to discuss any feature of this paper? The chair wishes to announce at this time the following

Committee on Resolutions.

Edward Orton, Columbus, Ohio, Chairman,
J. T. Gunness, Anaconda, Mass.
W. E. Dunwody, Macon, Ga.
L. P. West, Washington, D. C.
John W. Reagan, Knoxville, Tenn.
Claude E. Fuller, Buffalo, Kas.
W. A. Brecht, Des Moines, Iowa.
G. Veneklassen, Grand Rapids, Mich.
A. A. Ayers, New York City.
F. W. Butterworth, Danville, Ill.

All the members of this committee are acquainted with Prof. Orton and you will be good enough to find your leader and follow him. I notice that our old-time friend Thomas B. McAvoy, of Philadelphia, and ex-President of this Association, has just come in and taken a back seat. I think it a duty he owes to the convention to come forward and take a front seat. (Applause.) He is a large man, and another ex-President, Mr. Conway, who is with him, is so small I did not see him, but will ask him to come forward also.

Secretary Randall: I have here a letter from another ex-President of this Association, Mr. Anthony Ittner, from whom you will be glad to hear.

MR. THEO. A. RANDALL,

Secretary National Brick Manufacturers' Assn:

I am in receipt of a letter from W. C. Smith, director general Winona Technical Institute trade school, at Indianapolis, Ind., and am answering same today. I do so much hope that our membership will see their way clear to give Mr. Smith's appeal in behalf of the bricklaying class of his school a liberal and hearty response in order that he may be enabled to continue same and enlarge its scope and usefulness.

I regret exceedingly that matters have so shaped themselves, as I wrote you a few days ago, that neither my son Warren nor myself will be able to attend this year's gathering, which gathering, I hope, may prove in the fullest sense to be the most successful, both as to number in attendance and general interest, in the history of our Association. I will thank you to remember me to all of the older members with whom I have had so frequent and cordial relations.

With kindest regards and best wishes, I remain,
St. Louis, Mo., Feb. 8, 1910.

Yours truly,
ANTHONY ITTNER.

President Blair: I desire to make an announcement in regard to the exhibits. As you know, the University of Pittsburg is still being equipped both in the way of buildings and apparatus, etc., and any exhibitor who feels inclined to turn his exhibit of specimen brick over to the University of Pittsburg, I know the action would be much appreciated by the university. I have no doubt many of the exhibitors will be very glad to leave their exhibits with the university. This brings us to the

Questions for General Discussion.

The first is No. 6, "What is the best artificial coloring for light burning clay for stiff-mud brick?" Mr. Purdy, will you please stand up and answer that question?

Mr. Purdy: I will stand up, but the question is too indefinite. I hardly know what is meant by "light burning" clay. We have light burning clay due to the lack of iron, and light burning clays due to the fact that burning qualities are just right to make it light burning.

President Blair: If the person who asked that question will examine at least one of the exhibits in the rear of the room he will find brick all the way from almost white to black that is burned from the natural clay without any artificial mixture in it. If he will go a step further and talk with Mr. Thomas Rouse of Brazil, Ind., the artist who has produced that sort of thing, he may get more information.

The next question is No. 7, "Why do plastic red clays



J. L. Stevens, Boone, Iowa.

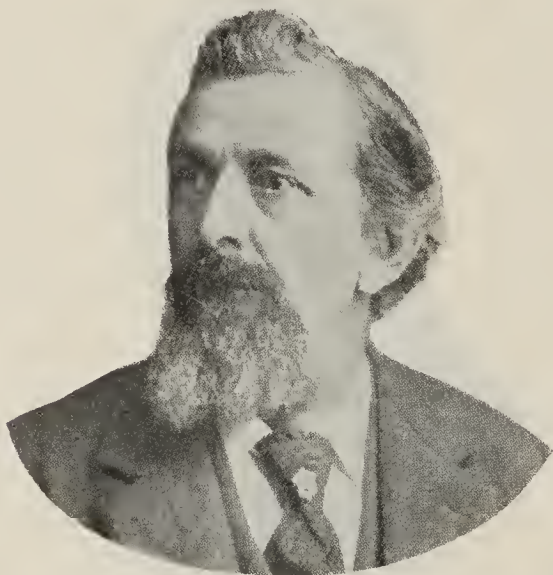
check or crack in burning? What is the remedy?" Another question largely of the same character of investigation which the Committee on Technical Investigation has been handling. Mr. Purdy will be able to give us light on this subject.

Mr. Purdy: We had a little experience with one clay that may bear on this question. We received a clay that had a very high content of iron. I think it was something like 7 per cent. It was red in its natural state and burned to a very good red brick. As the heat treatment progressed up to cone 1 the brick remained intact without any cracking. As the heat increased from cone 1 to cone 6 cracks developed without any apparent reason. It was not due to hasty burning, because we tried different time of burning. We tried to protect the brick in every way we could from any introduction of cold air into the kiln, but we always got those cracks, which, according to our experience, was inherent in the clay. It so happened that the brick were kiln marked, although it had not been burned to complete vitrification, had never gone above cone 6, it had an absorption of 8 per cent. While these brick were badly kiln marked, the brick actually dished down, warped, showing that the fluxing material in the clay had caused it to flow but not to vitrify the whole face. This burning of the fused portion of the clay caused a strain in the clay that seems to have resulted in actual cracks, and in some places the brick were cracked almost in two. The cause is something that is beyond us. We always trace down the cause when we can, but we do note

this phenomena in this particular clay—it was low in lime and very high in iron.

Geo. E. Howard, Butler, Pa.: I have had experience in this cracking in stiff-mud brick and in the side cut brick with clay, without any shale in it, sometimes so we can see through the brick in the center. The edge is intact. It starts in the center, but as it goes to the edge it decreases in width. When we put the same clay through an end cut machine we do not notice it, and I would like some information on that point. It is a clay that overlays the shale. When we mix shale with it that cracking ceases in both the side cut and end cut brick. It is a surface clay, but it makes a good end cut brick.

John T. Hummert, Quincy, Ill.: My experience has been in red burning clay that most of the checking is done in rapid water smoking, and not alone in the rapid water smoking, but also in the stage of annealing your brick you can check the brick. You may have the nicest kind of a burn, the kiln progresses nicely, have done your water smoking slowly, and the fire progressed fine, but you think you want to hold your heat and to damper up your kilns, and you have what we call a "fizzled" heat. Your brick are shrinking, they are annealing, but probably not fast enough, so you give it more draft. You will find by giving it too much draft at that stage your brick will check. My experience has been when I was making soft mud brick to have shapes made ahead and then



John T. Hummert, Quincy, Ill.

when we made our front brick we put our semi-dry brick in the upper end of the kiln, and when we put in our shapes, which were bone dry and mixed them with the damp brick we often found that these brick would check. It was caused by the dampness that came out of the wet brick which came in contact with the dry brick. The checking was done during the water smoking stage. So you have to be careful in setting your kilns and get as uniform dryness in different parts of the kiln as possible. These are the two stages in which the checking occurs in surface clays burning a red color. The checking is done during the water smoking, and subsequently by admitting too much draft in the annealing stage.

Mr. Purdy: Concerning the clays to which I referred: We water smoked very carefully and had no checking at that stage. We made arrangements whereby we could watch the brick during the progress of the heat treatment and up to cone 1 the brick were intact, and as the heat progressed from cone 1 on up we could see the little rents appearing, and as the heat progressed the little cracks became larger. These brick were end cut in one case and side cut in another, and we had the same results in both cases, due to the internal strain. I do not think the trouble referred to is due to any mechanical causes, but to trouble inherent in the clay.

Hervey Haigh: I have in mind a material that acts very much like this one referred to. The firm was making a very large brick, nine inches long. If these brick were set at all damp in the kiln, when you looked at them they would appear perfect as far as structure was concerned, if you took

hold of them they would fall to pieces. The bricks are burned in a Hoffman kiln that has been up thirty-five years to my knowledge. It almost ruined the concern operating it before the trouble was remedied. They were setting four or five chambers ahead of the firing. They increased it three more chambers and that settled the question for them.

J. H. Mead, Warners, N. Y.: This checking of the brick is a question that interests me. By the way, I am becoming very much interested in Prof. Purdy and when I go home I am going to send him a shipment of clay from our works. (Applause.) Our checking is almost entirely in the clay that we use. We use two clays, shale and clay. They analyze nearly the same, the clay being the wash from a mountain of shale, as we suppose, and we use it in sufficient proportions in our common ware and form a bond for the shale. The shale does not check. I almost think we could build a hot fire under the brick that comes from the stiff-mud machine and burn it there without any difficulty at all. But our clay checks very much in drying. We have tried drying in the open air, we have tried drying under a roof, drying in a Sharer dryer, drying with waste heat, drying with steam, and the results seem to be practically the same. We can make a very substantial building block, hollow brick and hollow block, but we have to make it mostly of clay. Our trouble comes before the product goes into the kiln. I have placed brick and block in the kiln that had small checks in them, such probably as you could put the point of your knife in, and when these brick were burned sufficiently hard they were not checked any more than when they went into the kiln, so it is in the drying. We have tried introducing shale into it, putting a little in first, and a little more and a little more, and a little more until there was sufficient shale, which seemed to hold the brick together in drying, or keep them from checking. I am not very familiar with the chemical part of brickmaking, and do not know that I can give any information, but I am anxious to receive some, and if there is a way to stop this checking it will be an advantage to me in my work when I go back home. I like the idea of these questions for general discussion. It seems to me this is the place where those who own the plants get back the money that is spent in sending their employes to these meetings. I am just as much interested as though I owned our factory myself, although I do not own a cent of it, and what I learn here will be of use to our people when I get home.

Mr. J. W. Reagan, Knoxville, Tenn.: I think the brother has given us a straight proposition. I think when we put our brick in the kiln without checks we are going to burn them without checks, but the best place to start to correct this trouble is in the dryer. We can not all of us mix shale with our clays. We have one certain kind of clay and have to work that. I have been up against this checking proposition and I have found that my checking comes in the drying.

Hervey Haigh: This question says, "Why do plastic red clays check or crack in the burning?" I know this to be a fact, that often this material is not cracked or checked when it goes into the kiln, but when it is subjected to the heat coming too fast in the burning, and that is what these people are up against, and I have an idea this man who asks this question is up against the same thing.

Mr. Bloomfield: What I do not know about brickmaking would fill a large book, but for the past two years I have had some experiences that have been expensive. We have found with our material that if our product goes into the kiln right it comes out right. We are using a red clay, by mixing in some shale we get better results, and we hope to use more shale. When we once get our ware in the kiln our troubles cease. It is in the drying we have had all the trouble.

W. E. Dunwody, Macon, Ga.: I manufacture a good many red brick out of red burning clay. My experience has been there is about four different ways of bringing about this checking. It is possible the gentleman asking this question was troubled with the checking occurring in the burning. If he is a wise man he will take advantage of Prof. Purdy's suggestion and send him some of the clay to be tested. Sometimes when this checking occurs you are not using the right kind of a brick machine. Another thing is you are not prepar-

ing your clay properly. Sometimes you have hard particles of dry material in the center of your brick so when they begin to dry they do not dry even, and the particle becomes dry and cracks open. Another thing is using too much air in the drying, having too much draft. A great many clays are tender and will not stand much draft, and another way is by cooling the brick too fast.

Marion Blair, Indianapolis, Ind.: During the last year I had a little experience in the drying question which may be of interest, though I do not know that it will throw very much light on the question. I happened to be on a plant in which they were having a great deal of trouble in checking. The owners of the plant knew a great deal of the trouble occurred in the drying because they found it necessary to throw back from 25 to 40 per cent. of the ware that came through the dryer. On the other hand, they thought some was in the kiln. I asked the superintendent what was the weight of their brick. He said the shipping weight was about sixteen pounds. They were making a red hollow block from sandy clay. I said, "What does your brick weigh green?" He said, "I don't know." I said, "What does it weigh dry?" "I don't know." "Did you ever weigh it?" "No." "Do you know how much water you have to take out?" "No." "How long does it take to get out what you do take out?" He said, "It takes a week." I said, "Suppose we get a little platform scale at the grocery store and go through that dryer. What part of the dryer do you begin to take the water out?" "I don't know." "Well," I said, "suppose we find out." The dryer was fourteen cars long, and we found he was driving three pounds of water out of that block in twenty-four hours instead of a week as he thought. The dryer had stacks at the end, and I said, "Did you ever find out the temperature of this stack?" "No," he said, "how would you do it?" I said, "A thermometer would help," so we got a thermometer. The temperature of the outside air was about 90 and the temperature in that dryer stack was less than 80. A piece of iron placed at the upper end of the dryer would catch a very, very heavy dew. Now that dryer had absolutely no circulation and there was absolutely no water taken out until he got down at the end of the dryer, then he shoved his brick in to the heat and the brick went to pieces and he wondered why. (Applause.)

Alfred Yates, Shawmut, Pa.: I have listened to this discussion with interest. My experience teaches me that in drying clays it depends on the strength and structure of the body. If the circulation is too rapid and in excess of the necessity of taking up the moisture and carrying it off, you take it from the outer surface of the clay faster than you replace it from the center. Consequently you cover it with a crust, and the brick is going to check. If your body is so dense and strong you must govern your circulation accordingly and only take the moisture from the outer surface as fast as you take it from the center. Now, in regard to people making statements that the checking occurs in the kilns or in the dryer it is a difficult matter to determine, but in finely constructed clays, the lines will be so fine that it will be impossible to detect it with the naked eye. The only way to remedy that is to have the proper circulation adapted to the body of your material.

Mr. Mead: I get the idea that some of the brother brick-makers understand that I said the brick did not check in the kiln. That was not my intention. I simply said that our clay was so affected. Our trouble is before the brick go into the kiln, I am positive. I was interested in Mr. Blair's talk about the weight of the moisture that was being taken from the brick. Our brick loses 30 per cent. from the time it leaves the machine until the time it is taken from the dryer. I never went to the trouble to weigh the brick down along the tunnel. I do not know how rapidly the water is going out or where it begins to go, but I have weighed the brick when they went in and when they came out and the difference is about 30 per cent. in twenty-four hours. Our clay does not dry quite as fast as the shale, but we have no trouble in checking with our shale.

George H. Drew, Fort Mill, S. C.: I have dried brick for a number of years with most every known process there is—steam, waste heat, with coal and oil. We have found trouble with tender clay if we got too much heat and too much cir-

ulation. When you put brick into a tunnel dryer, if you have heat enough to dry the outer edges before the center gets warm, it will form a crust and you will have check brick. If the brick goes through the sweating process so the brick is thoroughly warm, I do not think you will have any checking trouble.

President Blair: The next question is in the same line. No. 8, "What is the most practical method of moving cars through the progressive tunnel dryer?" Have we any dryer men in the convention that will answer that question?

H. C. Kleymeyer, Evansville, Ind.: I would say, give it the proper grade. I do not mean from one end to the other. I have built three tunnels with the discharge end on a dead level. The first ten cars I give it a grade and the next two cars very little grade, and the center of the dryer has more grade. Then we have no trouble drawing the cars out. We have a grade of about one inch to five feet. Give all the grade in the center part of the kiln.

George H. Drew: We find a standard grade for a dryer is about one-eighth inch to the foot. If you haven't a gradual grade all the way down, in pulling your cars out they will pull a little and then stop.

President Blair: Mr. Drew says the standard grade is about one-eighth inch to one foot. Will some of the dryer men give us their opinion.

V. F. Outland, Indianapolis, Ind.: The understanding has been, speaking from the standpoint of the dryer man, the



George H. Drew, Fort Mill, S. C.

proper fall and rigidity of the tracks themselves. If you have the proper fall and the tracks are not properly put in, that fall will become indifferent. In the operation of a dryer you must have your tracks in a position that is absolutely rigid and retain that rigidity, else your fall will finally vary in the kiln and the cars will stop and not go through properly. If you do not have a properly secured foundation, then the tracks are likely to warp. You have to have a fall, as Mr. Drew has said, of one-eighth of an inch to the foot. You take a wooden foundation, it sometimes requires three-sixteenths of an inch. This will not do with a steel foundation because the cars will run away and run through the back door.

President Blair: I think that question has been answered pretty thoroughly. The next is No. 9, "What is the maximum practical length of tunnels of a progressive dryer, a blower being used to supply the hot air and an exhaustor for removing the moist air?" I suppose that would depend largely on the capacity of your blower at one end or the other end, as the case may be, either the intake or the outtake, but certainly the capacity of the blowers would have to be adjusted to suit the length. However, the chair did not mean to answer that question. Mr. Penfield is here, and I think he can throw light on this question.

L. W. Penfield, Willoughby, O.: In the case of this question there is a blower at both ends of the tunnel, one that pushes and the other that pulls the air. The inquirer probably wanted to know how long a tunnel could be used ad-

vantageously to carry off the moist air without it being precipitated at the cold end of the dryer. The usual length where all other conditions are right is 105 feet. They are made all the way from 120 to 160 feet, but 105 feet, it has been found in a large number of cases, gives good results. The conditions mentioned by our president must be observed, the proper size of the blower at the hot end. The warm air will absorb a fixed amount of moisture when it comes in contact with the cool air, and there is a length beyond which the efficiency of the dryer is lost.

President Blair: Mr. Penfield has given a concise answer to that question, and we will take up the next, No. 10. "What is the most practical method under given conditions of removing condensation from steam drying plants and returning the hot water to boilers?"

H. R. Straight, Adel, Iowa: We have a method that I do not think can be improved upon, at least in our case. We use coils to condense our steam with a fan blower, the condensation is returned by gravity to a pit in the boiler room. This pit is low enough so the water will run into a receiver that has about a barrel capacity. In this receiver is a float, which is attached to a lever on the outside of the receiver which operates a throttle valve in the steam pipe in the boiler room. This will keep the dryer free from condensation and return automatically all condensation to the boiler. If your boilers condense all the steam you will never have to watch your feed water level and you will always be sure your



Marion Blair, Indianapolis, Ind.

dryer is dry. I do not believe it can be beat by any steam trap. We return our exhaust steam that way. We have an oil separator in our exhaust line. We use a boiler compound which puts the compound in the steam before it goes into the coils and we also have a method of overflowing the receiver every three or four hours, so that all the grease that will accumulate on the surface of the water in the receiver will be overflowed out through the valve in the top of the receiver. The condensed steam is taken by a pump from the bottom of the receiver, so that any oil that goes into the coils comes back in the water and is always on top of the receiver until it is taken out.

J. A. Link, Baltimore, Md.: How long have you used exhaust steam?

Mr. Straight: About a year and a half. We have discarded the condenser from the dryer and are using that water from the tank. The reason we discarded the steam trap and adopted this scheme was because we were troubled with the oil and grease in the water.

Vice-President Crook (in the chair): Are there any other questions you want to ask this young man?

W. A. Dunwody, Macon, Ga.: I have had that same trouble in regard to the oil returning to the boiler. The trouble, I think, came from the fact that the workmen would not keep the drain pipes from the oil separator open. So I took the valves off and put a reducer on the bottom of the drain pipe so it would stay open all the time.

How to Dry Tender Clays.

Vice-President Crook: The next is question No. 11, "Can tender clays be dried successfully with waste heat?" You understand these are real questions asked by people who are after just the kind of information we can give them. If no one volunteers to answer this question I will call on Mr. L. W. Penfield again.

Mr. Penfield: The question admits of a qualified answer. A tender clay can be dried as successfully in a waste heat dryer as in any other dryer now in common use. The reason for that is you have as perfect control in a properly constructed waste heat dryer as in any other dryer. It is therefore possible to dry in a waste heat dryer with proper management tender clays as well as any other clays.

Vice-President Crook: I am sorry neither Mr. Lovejoy nor Mr. Richardson is here; they have both given a great deal of study to this question.

Sand-Lime Brick as a Competitive Material.

Secretary Randall: One of our members, Mr. I. C. Jones, of Minneapolis, Minn., has requested me at sometime during the sessions, if we could, to take up the question of sand-lime brick and its status as a competing material. Mr. Jones himself can tell you why he wants this matter discussed. He would like to hear the experiences of the members who have come in competition with sand-lime brick. Is there any likelihood of sand-lime brick becoming a serious competitor of burned clay brick? What has happened in localities where sand-lime plants have been started?

A Member: He will find out if he waits long enough.

J. W. Sibley: I have not had any experience in making sand-lime brick, but there was a sand-lime brick concern started in Birmingham. The plant cost about \$125,000. The answer as to sand-lime brick being a serious competitor is that it depends on the size of the pocketbook of the man going into the sand-lime brick business. The plant is still in Birmingham, but has not been operated for more than a year. It depends a good deal on local conditions. If the sand-lime brick does not come in competition with clay brick and the sand-lime man can get a sufficiently high price for his brick he can go ahead.

P. A. Smith, New Brighton, Pa.: I happen to know of a case where a young man who had made a success in other lines of business went in to the sand-lime brick business and made a failure.

Hubert Somers, Atlantic City, N. J.: In 1901 we went into the clay brick business. A sand-lime plant was started and we were asked to go into it, but we declined. At the present time there is a row of dwelling houses on the site of the sand-lime brick plant.

Secretary Randall: It was certainly not for want of raw material, for Mr. Somers lives at Atlantic City. (Laughter.)

Vice-President: Are there any more obituaries to bring to the notice of the convention? (Laughter.)

Mr. I. C. Jones, Minneapolis, Minn.: I would like to explain why I want this question brought up. I came to the convention two years ago at Columbus for the purpose of investigating the question to some extent and was satisfied with the discussion and reports made at that time, and went home satisfied and with my courage up and have kept it up, so far as we are concerned, but the sand-lime people have continued to make brick and bring them into our market, and for a time have carried the price down below the profit line, and are a real factor in our market at the present time. I wanted this brought up for the purpose of carrying back a little courage to the fellows at home, and not particularly for my own information, because I have been satisfied. We have a little organization, the Northwestern Clay Association, and we are trying to hold together, but some of our members are considerably agitated over the sand-lime brick proposition, for they are shipping brick into our market at a ridiculously low price and, what is worse, they are good brick. (Laughter.)

W. P. Blair (from the floor): It is true that in a very few places in this country sand-lime brick can be made in competition with clay brick made in the same locality, but these places are very few. During a period of time covering a year or two, there were a great many sand-lime brick plants

erected here and there all over the country, but I suppose it is fair to say that 90 per cent. of them have gone out of business. I know one plant not a great way from Chicago that is struggling along and making a sand-lime brick of a fair quality. Possibly the conditions as to raw material and sand are such that they can make a fair quality of sand-lime brick at a marketable price, but experience demonstrates that in but few places is that possible in this country.

S. A. Barley, Stratton, Pa.: I am sorry to say we are located in the sort of a locality mentioned by Mr. Blair, where sand-lime brick are a hindrance to us. They have what is termed a ground stone. It is a company that has been operating for a number of years. They are making these brick and delivering them at the building at a very low figure. I am also sorry to say they are making a very good brick. I can not say that the conditions are different from some others. They require ground stone for building and they use the waste that they haul out on the dump and can manufacture it into brick, manufacturing them in connection with their other business, and I say again it is a hindrance to the brick manufacturers of our locality.

Anton Berg, Ontario, Canada: I must say there are two points of view. This may or may not be a serious matter to the clay man. I have listened to the discussions of this convention for years and years, and from the commencement to the end I hear you talk about brick, nothing but brick. I call it building material. I have seen building material, clay brick, that did not stand even a crushing load. There are low grades of clay brick that we have tested that do not stand a thousand pounds to the square inch. There are clay brick that are in buildings that do not even stand 590 pounds to the square inch. Such a brick should be mentioned in our convention, for it is a dangerous and serious matter for such a brick to be on the market. Brick should be a standard building material. I am not a brick maker in fact, but I have considered the brickmaking industry from soft mud, stiff mud, dry press and sand-lime, but I do not recommend anybody to go into the brick business unless he can make a brick that will stand over a thousand pounds to the square inch unless he wants to make brick for barns in a country village. There are places where they do not have any kilns, just make adobe brick and plaster them on the outside and they answer the purpose. But let us be serious. When we talk about brick I mean the highest grade of building material. I have seen sand-lime brick on the market that should be put off, and such sand-lime brick have done a great deal of harm to the industry. But they have been perfected and there are just as good sand-lime brick, just as high grade sand-lime brick, on the market as can be manufactured. It has been proven by extensive tests in the laboratory in Chicago, and these tests are to be printed and form a standard to which sand-lime brick must conform, and it will mean a sand-lime brick that will stand from three to six thousand pounds per square inch. There are brick that can be manufactured for \$4 a thousand that will increase in strength and will be used as long as any other building material on the market. Understand, I do not want to say that sand-lime as a building material will put vitrified brick or any high grade of press brick off the market. But there is room for both building materials. Don't let us look at this matter only from the view of our pocketbook. Don't let us be selfish. We can not all be millionaires, Vanderbilts or Carnegies. I may look like I am selfish, but I am not. I strive in all my work to put a good building material on the market. As a machinery man, I want to work to your interest and to help my fellow brickmakers make good products. I am in this cause myself to make a high grade product. I think we should work in fellowship. The machinery man and the brick maker should work in harmony. You gentlemen should be honest in this matter.

E. J. Kane, Kushequa, Pa.: Would a three-fourth inch mortar joint with brick between the mortar joints be considered a sand-lime brick, or how about it? (Laughter.)

Vive-President Crook: No doubt, Mr. Berg, what you say is true, but it is pretty hard for a man who has his money invested in a plant to see something else come into the field and not be concerned about it. He is likely to take what you term a selfish view of it. It may be a matter of self-preser-

vation. If there is no further talk or discussion in regard to this question, we will take up the next question.

Secretary Randall: This really closes the program for the morning session, and I think it will be well for us to adjourn now and to then meet promptly for the afternoon session. The hotel manager tells me he must have this room by 4 o'clock this evening in order to get ready for the banquet. All the exhibits will be moved out this evening, but they will be put back in the morning.

President Blair: This afternoon's session will be given over largely to publicity work, and I trust we may be able to start promptly on time. A motion to adjourn is in order.

On motion of Mr. Dunwoody, convention adjourned.

THIRD SESSION.

Thursday Afternoon, Feb. 10.

President Blair: Gentlemen, the convention will come to order. There are four papers down for the afternoon session and I refer to the last one first, "Brick Paved Highways," by Mr. A. B. Lea, of Cleveland, Ohio. Mr. Lea is not present and has not sent a paper, as we hoped he would. Mr. Lea is the engineer who constructed the most of the 365 miles of country highways in Cuyahoga county, of which Cleveland is the county seat. He constructed them so well that, although he is a Democrat, the Republican administration was forced by public sentiment to appoint Mr. Lea at



D. V. Purington, Ocean Springs, Miss.

the head of the Public Service Board of the city of Cleveland and, that having just taken place, he is so engrossed with his duties that he was unable to prepare a paper for us, much to our regret, as we consider Mr. Lea as the leading brick paving engineer expert in this country. The first paper on the program this afternoon is "The Lure of the Clay Bank," by Mr. D. V. Purington, of Ocean Springs, Miss. We have already heard from Mr. Purington; he is not able to be with us, but he has sent a letter to the Secretary, which he will read to us.

THE LURE OF THE CLAY BANK.

MY DEAR RANDALL:

Just before I left Chicago, November 1st, you invited me to write a paper entitled "The Lure of the Clay Bank," to be read before the next annual convention of the N. B. M. A.. In common with most men somewhat advanced in years, who have had few opportunities to get themselves before an audience, I immediately accepted your invitation. It was evidently easy to lure me into the belief that what I might write would not fail to be interesting to all who might hear it. It did not occur to me then, as it has many times since, that my relations to the N. B. M. A. are greatly changed during the nearly six years of my enforced absence from its meetings.

At the time I attended the Boston convention, I was, and for many years had been, actively engaged as a clayworker, and had a large acquaintance with the members of the Association. My first qualms came as I looked over the membership list and was surprised to find that I had a personal acquaintance with less than one in four of its members. This indication of the Association's growth awakened me to a realization of the changed condi-

tions. The growth of the Association numerically during the past six years has been wonderful, and, judging from the annual reports, it is evident that in the list of new members are a number of exceedingly bright men, who, perhaps imperceptibly to themselves, are placing the Association on a much higher plane than was possible under the old conditions. Many of these men are the sons and some of them the grandsons of charter members of the N. B. M. A. Their predecessors may have been lured by the "clay bank," but it is more than probable that the large majority of the clayworkers of the present day have been lured by the desire to have more of the good things of life, and possibly by the knowledge that the contents of "a national bank" would materially assist the gratification of this desire.

At all events, the more I thought over your invitation the more I became convinced that it would be absurd for one who is today celebrating his entry upon the last year of the allotted three score and ten, and who is literally a "has been," so far as active or financial interest in any branch of clayworking is concerned, to write or talk to so many strangers, most, if not all, of whom are much more up-to-date on all matters connected with the "clay bank" and its accessories than D. V. All this preamble is preliminary to a declaration to write the paper at all. I should dearly love to attend the meeting at Pittsburg and make the acquaintance of the new members and grasp the hand and look into the dear faces of those whose membership is like mine, of an ancient date, but I dare not leave this genial temperature for that of western Pennsylvania during the month of February. You have been here and can tell inquiring friends that the "lure" of this coast, and especially this particular part of it, is to me at this time of life far greater than that of any "clay bank" I ever saw. I hope I shall never reach that period in life when I shall not enjoy everything with anything like a clay flavor, or fail to be interested in the development and progress of the work to



T. B. McAvoy, Philadelphia, Pa.

which I gave forty years of my life. The present generation has a great advantage over those of us who met in Cincinnati in 1886. It is probable that each up-to-date clayworker has in his library at the present time a far better collection of clay literature than was in the possession of any public or private library in the world thirty years ago, and much of this literature is of high order. To you and those who have come after you, is the credit due for the great impetus given for practical and scientific development of the clayworker's art. Then, too, we must remember that the genius of the inventor has been abroad in the land during the past third of a century. I am not sure that the "lures" of the inventors have not been more expensive than those of the "clay bank." There is a separate and distinct class of men who always attend the conventions of the N. B. M. A., whose object is to show the members how to add to their experience and bank account. They usually succeed with the former, and sometimes with the latter. However, they are no unimportant part of the Association, and are entitled as a whole to very much of the credit for the advancement the craft has made. Their ways are seductive and winning, and no class of men whom I have met in a business way are more accomplished or courteous, and at the same time more dangerous, than they. As I write there come before my mind the names of many of them whose friendships I shall always prize, and among them are some who lured me from my shekels. But I am writing more to you than I should have written with "The Lure of the Clay Bank" as a text. Will you take a little pains to say to the older members that no friends of mine have or ever will have a warmer place in my heart than those with whom I foregathered so many times as brickmakers. There is not one of them whom I do not love and for whom I would not be glad to do a favor or kindness. This includes the machine men, too. God bless them all.

Sincerely yours,
D. V. PURINGTON.

Ocean Springs, Miss., January 22, 1910.
(Applause.)

President Blair: I believe there is to be some shift in the program and I will ask Mr. Randall to announce the next number.

Secretary Randall: We desire to shift the program for the reason that Mr. Barber's paper is to be illustrated with stereopticon views, so we will have his paper first and hear Mr. Frothingham later. Mr. Barber's paper is entitled "The Significance to Brickmakers of the Revolution Now Taking Place in Domestic Architecture in America." (Applause.)

Mr. Donn Barber, New York City: Before starting on my paper, I want to thank you for inviting me to talk to you and show you a few views on brick work from the viewpoint of the architect. I thank you now because I do not know after you have heard the paper whether you will care to have me thank you.

(Mr. Barber retained his manuscript for the purpose of revision and promised to mail it to the secretary within a few days, but up to the time of going to press it had not been received. When it is received it will be published in full and illustrated with some of the many fine views of noted brick structures displayed on the screen.)

Siwart Smit, St. Paul, Minn.: A man once wanted to go to Chicago and could hardly talk because he stammered so, and said he wanted to go by freight because he could not express himself. (Laughter.) I cannot express myself fittingly and I can hardly express the thanks of this association to Mr. Barber for this splendid paper that he has given us this afternoon. It is not only instructive, but it is an inspiration which we ought to take home with us; we ought to digest it and think about it. The Phoenicians invented the alphabet and we could not read without it. So it is with the common brick, just as Mr. Barber has told us. Ruskin has said the history of mankind is written in three manuscripts—letters, arts and deeds. That of letters, literature and poetry, takes six or seven thousand words to express its meaning. It will take six or seven thousand kinds of brick to express everything the architect wants to make. In the manuscript of arts and deeds, we have not yet seen the end. The inspiration, the embodied ideas that the architect puts in the building, should be in the brick. Let us study architecture and come in touch with the inspiration of the architect and then we shall supply them with the material which they want. I want to move a vote of thanks to Mr. Barber for the very instructive and interesting paper.

Seconded by Mr. Eisenhart and carried.

President Blair: If there is no discussion on this paper, we will take up the next paper on the program, "Ideals Plus Horse Sense in Publicity Work," by Mr. Robert Frothingham, of New York. Mr. Frothingham is the advertising manager of Everybody's Magazine as well as the Butterick publications. He comes to us as an expert on the subject of exploitation, advertising and promotion, and, I have no doubt, will be able to tell us much of interest in the way of publicity work. We know how to make our wares; he will tell us how to place them before the public to the greatest advantage. I therefore take great pleasure in introducing Mr. Frothingham to the convention. (Applause.)

Mr. Robert Frothingham, New York City: Mr. President and gentlemen of the convention: At the time your secretary asked me if I would make some sort of a little talk at this convention a month or so ago and asked me to name my subject, I took it for granted that it would be something in the ordinary every-day line of publicity, more or less, and I told him I would take "Ideals Plus Horse Sense in Publicity." That meant anything you liked. Shortly after that I began looking up the brick industry and one evening's reading convinced me that I had to get off the general track mighty quick and get down to concrete brass tacks. I do not mean that word concrete except in the most general way. (Laughter.) The little reading I did at that time decided me that I would change the title to "The Need of Publicity and Its Value to the Brickmaker," and the Lord knows you need it. You need it more than any industry I know anything about in my limited experience.

THE NEED OF PUBLICITY AND ITS VALUE TO THE BRICKMAKER.

UNITE TO WIN THE PUBLIC.

BY ROBERT FROTHINGHAM, NEW YORK CITY.

Mr. President and Gentlemen of the Convention:

There is just one excuse for my being here today, and that is a mutuality of interest. Notwithstanding the dire need of national publicity for the brick industry, which I am bound to believe you gentlemen appreciate, some of you, nevertheless, will be prone to think that my ulterior motive, no matter how much I may dress it in fine speech, and no matter how solemnly I utter "notes of

warning," is just, plainly, to get you to spend money out of your individual bank accounts on advertising in the magazines, one of the magazines being mine.

All right—we will leave it that way. I don't pretend to be a missionary for nothing—any more than you do when you use your fine salesmanship craft in persuading some building gentleman that he will make a grave mistake for his own interests if he should fail to use brick instead of wood or cement. You haven't near so much love for him as you have for brick.

Search myself as I may, I can't find any sound reason why I am more anxious for the commercial success of brick than of cement. Indeed, if I consulted only my own interest, I ought perhaps to be more concerned for cement, for the cement manufacturers are already large and successful advertisers in the magazines, and I am bound to hope that our pages, in which they are investing their asset of publicity, may return to them a further success.

But I am not disloyal to those business friends of mine when I come here in the hope of making business friends of you also—any more than a great department store wrongs one manufacturer of hosiery by carrying competing lines.

I do repeat, however, that I come here in the spirit of *mutuality of interests*. You know what *that* means. When you tell a gentleman he ought to build of brick, you so honestly believe in the advantage of brick that you know you are serving his interest as well as your own. All honest trade is based on a fair mutuality of interests.

Consequently, I am absolutely sincere when I tell you that for your own interest you ought to pool issues and begin a thorough advertising campaign for brick.

You are manufacturers and merchandisers both. I am a merchandiser only. To advertising and merchandising as a combined business science I have given my whole attention. If I know anything about it, I have got it through experience. I have watched many hundreds of big manufacturers formulate and carry through successful merchandising campaigns, through the aid of scientific publicity. You are not so unlike other manufacturers, your product is not so unlike other products, your conditions as a collection of big and little concerns are not so unlike the conditions of some other industries that the successful experience of other producers may not have a lesson for you.

So without pretending any more anxiety over your welfare than to say that you and I have a mutuality of business interests, let me tell you how your affairs look to me as an advertising man. I needn't go far into your present trade conditions further than to show that I know the serious side of them.

Broadly speaking, the brick business has always been in an unsatisfactory condition. There has been comparatively little money in it. But brick has never had its proper share of business here in America.

Both wood and cement have increased in vastly faster ratio than brick.

You have the deplorable statistics so clearly in mind that I need not go into them in detail.

I need only say that this fact that both wood and cement are outstripping brick seems to me both wrong and needless.

Thus wood, as a building material, costs, I am told, about 25 per cent. more than it did ten years ago, so that a wood house costs very nearly as much to build as a brick house—the difference in a \$10,000 house being only \$500 to \$600 in favor of wood—while the wooden house costs so much for painting and repairing that it is really the more expensive.

As compared with the best cement, I understand that the difference of cost between brick and cement is too trifling to be much considered. While as a fad, cement may have the advantage of novelty, for unquestionable substantiality and permanence, brick has the proof of history. While the best cement *may* last without giving trouble, brick buildings hundreds of years old attest the strength of your product.

Consequently, if wood, in spite of its present extravagant cost, is still so far ahead of brick, and if cement has in nine years increased its output 700 per cent, while brick has increased only 50 per cent., the causes must be *artificial* and *unnecessary*.

In other words, there is no *insurmountable* reason why brick should be so heavy-footed in this race. There is no *intrinsic* reason why brick should not now become more favored than wood, even for buildings and houses of a very moderate cost. There is no *essential* reason why brick should permit its young rival, cement, to continue to walk away from it with such wonderful strides.

Now, as I look at it, there is one practicable way to surmount your present difficulty and make brick move faster. It is to *persuade* the public that brick offers advantages in both artistic taste and permanency which neither wood nor cement can offer.

Your only possible thoroughfare to the public is the road of *persuasion*. That is so self-evident that nobody will dispute it.

But how shall you persuade the vast, capricious public?

If you knew everybody who was going to build; if you had an army of accomplished solicitors to call upon these individuals at the psychological hour; if you had trainloads of attractive literature, illustrated in colors, to hand to them, then you would give your business a decisive boost. But that method of persuasion is too costly and impossible to be discussed.

There is one other method of persuasion which is neither too costly nor impossible, and will be effectual. That is a united campaign of magazine advertising.

I know that in your case, in view of the great number of isolated manufacturers of brick and of the different kinds of brick which you make, that also has some apparent difficulties. Presently we will see how those difficulties may be surmounted.

But before that, let us make a little divergence, and see how some other industries, having to do with building, have persuaded the public through advertising.

Pittsburg is the home of the Standard Sanitary Manufacturing Company. As late as the nineties all-white bathrooms, with open bowls, tubs and closets, with gleaming tiling and shining nickel, were a rarity, confined to the homes of the rich. Early in the present decade, the Standard Sanitary people began to advertise in the magazines the desirability and beauty of the all-white and all-open bathroom. Persistently, month by month, each of the great magazines carried that attractive picture, and the short educational story of how possible it was for the ordinary home. It was a definite and determined campaign of public education. Since that magazine advertising began, eight years ago, 7,000,000 Standard outfits have been sold. This country has had a regeneration in cleanliness. Today scarce a home is too humble to have its white bathroom. The American housewife is as proud of her glistening bathroom as of her pretty parlor. This mammoth success has been accomplished by simply reaching the public mind and taste through magazine advertising.

Look at the experience of the Barrett Specifications Roofing. Here is a roof of gravel or slag pitch and tarred felt. Coal tar pitch is made in a multitude of places. So is tarred felt. But the Barrett Manufacturing Company, who also makes both these products, prepared certain specifications for laying this kind of roof. There is no prohibitive reason why the specifications laid down by the Barrett Company can not be applied to the coal tar pitch and the felt made by other concerns. But the Barrett people have their own excellent and well-tested brands. So when a builder takes their specifications he is expected to buy their special brands of coal tar pitch and felt also; and he is so persuaded of their excellence that in most cases he *does* take them. The public now knows all about Barrett Specification Roofs. Yet this roof has



R. D. Lindsay, Denver, Colo.

only been advertised for five years, and under the name of *Barrett Specification* for only three years. Five years ago the appropriation was very small. Today this concern spends \$200,000 a year for promotion and publicity.

How was the enormous success reached? First by keeping Barrett before the architects and engineers persistently. Then by making the *public* familiar with the idea and name through the best of the general family magazines. Now, when an architect suggests "Barrett" for a roof, there is such a good will towards it on the part of the consumer that it is sold almost as soon as suggested.

The most significant feature of this great roofing campaign of publicity is this: When the Barretts first began to advertise they had nothing to sell exclusively except their specifications—a recipe, if you please, that anybody could follow. All their competitors in the coal tar, pitch and felt industry could use those same advertised specifications for their own products, and they did. The Barretts were laughed at for making so much business for their competitors. But the final result is that the Barrett specifications and Barrett brands of coal tar, pitch and felt now go together. When the public accept the specifications they also buy, in nearly every instance, the Barrett brands of pitch and felt, because, largely, of their good will towards this liberal-minded concern.

Particularly interesting to you will be the course of the cement publicity.

There are perhaps 150 manufacturers of building cement. There are less than ten of these that advertise, chiefly the Atlas, the Edison and the Lawrence.

The far-sighted, big men perceived the advantage to their own concerns in educating the general public to the use of cement in place of brick or stone or wood. They prepared a series of beautiful books which covered the uses of cement for all possible purposes—not only for building, but for cellars, for flooring, for sewers and wells. These instructive books were as applicable for one concern as much as another; there was no cinch to hold the valuable information to the first concern that published it.

These books were sent out broadcast to architects and contractors. They were also advertised to the general public in the best of the family magazines. The public at once responded and requests for these books came in by thousands. These requests were referred to the local agents handling that particular brand of cement, urging these agents to get after the prospects.

While in most cases the sale of the advertised brand was consummated, very often the sale went astray, and another concern got it. So the profits of even the direct responses to cement advertising were not always confined to the concern that advertised.

The important fact is, however, the advertising so awoke the public to the use of cement that all cement makers reaped the general interest, and all advanced. But while *all* the cement manufacturers have profited somewhat from the advertising of the few, it is these very few whose business has made the greatest strides. To them, the three years of general advertising has meant mammoth fortunes. While these few broad-minded men made public sentiment faster than they could sell cement, and the overflow of popularity went to hundreds of little fellows who tagged on in the business, they could well afford this aid to their smaller competitors, for the wider the use of cement, the more business came to swell their own advance.

Now back to brick. Why should not brick persuade the public of its desirability and beauty through the same kind of magazine advertising?

First, the great magazines are the most effective conveyancers of such an important line of education.

Alone, among all the other kinds of advertising mediums, the magazines actually back up their advertisements, and the public knows it well. The best magazines censor their advertising pages so rigorously that they won't admit any fakes. In the best magazines you won't find any patent medicines, any cure-all specific, any questionable financial scheme, or any other advertisement which seems intended to delude by its exaggeration. Magazine readers now realize that the best magazines are reliable advertising insti-



George O. Berry, Columbus, Ga.

tutions, and that all that is announced therein is worthy of confidence and careful consideration.

Consequently, when brick begins to tell its message in these magazines, the millions of readers will look at the artistic brick houses and read the story of brick's advantages with attentive interest.

Next, you may be sure that the reading public will enjoy renewing their acquaintance with brick, through its advertising.

Brick is an old, old acquaintance. But when brick makes its bow to the millions of magazine readers, and politely invites a renewal of their friendship, there will be a winning novelty about it, and the public will catch on immediately.

Gentlemen, do you realize how easy it is to get the good will of the public through advertising? To comprehend it fully, one must either have the hind-sight of an accomplished success, or else have studied the experience of other advertisers. To see what other advertisers have done in capturing the good will of the vast good-natured public ought to be enough.

The public likes to be paid the compliments of being addressed and solicited by a great industry. The greater and more familiar the industry, the handsomer is the compliment. Advertising now and then, or in an insignificant manner, doesn't awaken this general sense of public good will. But the two great advertising industries I have mentioned—Barrett roofing and Standard Sanitary Manufacturing Co., and I could cite a hundred equally remarkable successes—do you not realize that there is a public bias in their favor, and that when roofing or paint or bathrooms come to be needed, there is a favorable thought in their direction?

How much more powerfully would this be the case with brick? For, while all those materials I have named are newcomers within a few years, brick is the familiar friend of our childhood, associated in our earliest impressions with the grand and imposing buildings of the town. Brick? We know it as kindly as we know leather. Brick doesn't require such an awful lot of repetition to make us think of that first when we are ready to build.

But we do need to have our interest reawakened in it.

Brick is a long-ago, almost forgotten friend.

When we plan to build we are first possessed with some idea of novelty. Cement, for instance, has been persistently rubbed into our minds. The marvelous claims it makes, the pretty pictures of stately mansions it presents in its advertisements, to say nothing of the number of cement houses we are seeing, all incline us to try that new experiment.

Or, the habit of wood is strong upon us. We were born in a wooden house, and we thrashed around wooden barns, and nineteen-twentieths of our early experience was in wooden structures. In our mature years we see how the architects transfigure clapboards and shingles into wooden models of grace. So in spite of the exorbitant cost, we somehow cling in our minds to wood, and never give brick a serious thought.

But now, suppose we began to be reminded of brick, through the pages of our favorite magazines, as a material of the highest beauty, of the surest permanency, and quite within our means? Do you not perceive that we would presently begin to give to brick a very different and a very feasible place in our thoughts? We might say two things: "Let's go beyond the old wood and build us of brick;" and also, "Let's stick to good old brick and not try queer experiments in cement."

So much to illustrate what magazine advertising will do for brick.

The final question is, Can such a collection of independent manufacturers as this unite to pay the bills?

Gentlemen, that question depends on how broad-minded and far-seeing you are. I know that in some industries such an alarming state of affairs as is staring you in the face would cause a convention like this to lose its sleep, and would cause its individuals a mighty worryment when they got home. But that alarmed state of mind would be only because the individual members of such ambitious industries have got used to thinking of their line of business in a *collective* way, and have come to realize that though the manufacturers are many, the business is a *unit*, and in the long run they all rise or fall together.

On the other hand, if the individual manufacturers composing a line of industry have never got away from the individual idea, if they are more interested in competing with one another than in building up the business as a whole, if they are content with pegging along with only a trifling increase of business, over past years, then they could come together in convention, growl at the ill-luck which seems to have befallen the business, declare that if all their competitors would act in concert they would get in, too, but they would not do anything that might benefit a competitor if he wouldn't bear his share—and go home to push the heavy load uphill another year, and return to the next convention to find affairs all around the lot worse than the year before.

To which of these two classes of industries the brickmakers belong, this convention will indicate, either by starting a real campaign, or ending with indefinite discussions. From the character of the men who are here, and from what I can learn of the spirit already manifested in these meetings, there is no apparent reason why this Pittsburg convention should not make itself memorable by the uniting of interests and subscriptions to start a national campaign of publicity for brick.

I think it has already been pointed out to you how, if the makers of building brick of this country should assess themselves a penny per thousand brick of their output, the handsome sum of \$60,000 per year could be raised—large enough to inaugurate an educational advertising campaign which would revolutionize the domestic building interests of the country by turning the thoughts of the millions of magazine readers of the country brickwards.

I suppose one obstacle to this plan, in a good many minds, is that since all the brickmakers would not consent to such an assessment, it would place the burden of the assessment on only a portion, while the non-paying men would reap equal benefit.

Nobody can deny that that objection is very natural. But I ask you, as broad men, is it wise, or conclusive?

Look further than your primitive unwillingness to bear the other fellow's proper burden.

Are you in business for yourself or for the other fellow who shirks? For yourself, of course. But don't you see that you are cutting off your own nose just because the other fellow never had a nose? To prevent him from rising, would you stay down yourself? Because he won't make the same investment in progress that you will, are you going to give up your own chance of progress, and remain as heavy-footed as he is? Really, you do care more for your resentment at his selfishness than for your own advance to fortune?

As a matter of fact, what does it matter to your real interests whether he profits by the advance of brick or not? If you unite with the progressiveness in this movement you make more money, and you really don't lose any money because the selfish and narrow fellow makes some more money also, for the new profits won't be there unless you, and those like you, put your shoulder to this wheel.

There come times in life when a big-minded man has to do the big thing, irrespective of the timid folk and do-nothings who may also profit by what he does unaided by them. When the nation is in danger from an enemy, some men there always are who will enlist and fight for the common good. It is no more their duty to do so than it is the duty of the smug stay-at-homes. But theirs is the glory and the honor for refusing to be mean and disloyal.

In this case, the men who love their grand old industry of brick enough to unite, to pool their interests, to forget the unworthy and narrow impulse, are not putting themselves in danger. They are only advancing their own fortunes and showing their own bigness. For presently the country will show such an era of building as the world never saw before. From end to end of the United States mechanics in swarms will be laboring at building, filling the air

with the rattle of their work, day by day, crowding the streets and the trolleys as they go home at night. Which then shall be in most evidence—the hammer on the clapboard, the hoe and mush of the cement, or the mason's trowel?

Your action at this Pittsburg convention will go far to say. (Loud applause.)

General Discussion.

President Blair: Is Mr. J. M. Adams, of Columbus, Ohio, in the room? I am calling on Mr. Adams because I understand he wanted to make a few remarks following this address.

J. M. Adams, Columbus, Ohio: Gentlemen of the convention, we have had such a good speech that I do not think it necessary for me to add anything to it. I would like to make a speech just now because I feel like talking to this body of men, but we have to get out of this room at four o'clock and it is now nearly five, consequently I will not inflict any speech upon you. I am sure I am heartily in accord with everything said by Mr. Frothingham, and I know you are in full accord also. We have already taken the step to do much at this convention, and we propose to do very much more toward starting a system of advertising and bringing brick before the public as it ought to be. The question is whether all will help or whether only a few; we cannot tell until later, but we do know that there are enough wide awake, enterprising, energetic, far-seeing men in the brick business, and dealers in face brick and common brick in this convention, to start this thing off with a boom. As has been said by Mr. Frothingham, there are those who will come tagging along who will not join the procession. That is always the case. But let them alone; they will come after a while. I think they will be very glad to come after a while. I want to introduce this resolution, that we tender a vote of thanks to Mr. Frothingham for his very able paper.

Seconded by Mr. Matz and carried.

President Blair: Gentlemen, in this month of February there is a convention of brick manufacturers of the United States being held in the city of Pittsburg. Upon the walls and around the outer portion of the room in which they meet is an exhibit of their ware probably in value of five or six hundred dollars. I suppose that convention is listening to five or six lectures, no doubt interesting and no doubt important. That is what is going on in the city of Pittsburg in the month of February, 1910. In the city of Chicago is a like convention of another craft. In the hall and about it is an exhibition on which the exhibitors have spent a hundred thousand dollars or more. The value of the industry represented by the convention at Pittsburg is four times that of the industry represented by the one in Chicago. But in the city of Chicago one hundred thousand dollars is being expended and in the city of Pittsburg five hundred dollars. Without any further suggestion and in view of what is about to take place, I think it proper to call Mr. R. G. Eisenhart, of Horseheads, N. Y., to the chair, in order that we may proceed; so if there is any enthusiasm or inspiration at this time, we can let the good work go on. (Applause.)

The Publicity Movement Takes Form.

Chairman Eisenhart: Gentlemen of the convention, we believe we voice the sentiments of everyone interested in publicity affairs when we say we highly appreciate the kindly consideration shown us by the presiding officer and Secretary Randall, in giving us a part of this afternoon, that we may transact our business here, where you may all be present and assist us. We want it distinctly understood that this publicity affair is not the affair of a few men; it is the affair of every clayworker. It ought to be the affair of every middleman who sells clayware and every machinery man who sells brick machinery to the clayworkers of the country, and we trust you will all stay here and take part in the work. We hope you will give our work hearty consideration. What is the pleasure of the meeting?

Secretary J. Parker B. Fiske, New York: I understand this is now a meeting of the Clay Products Association, and the first business in order will be the reading of the records of the last meeting, and I move that the reading of the minutes be dispensed with.

Seconded by Mr. Hummert and carried.

Secretary Fiske: The plan of changing the scope of the Clay Products Association has been very fully discussed in

several meetings which have been held in the Dutch room. I understand some modifications in the by-laws of the association are to be suggested in this meeting.

R. L. Queisser, Cleveland, Ohio: Mr. President and gentlemen of the convention, as Mr. Fiske has just stated, a committee worked on a tentative or preliminary meeting of the Face Brick Manufacturers' Association in conjunction with the executive committee of the Clay Products Association, and have formulated a new plan of operation, and I move you, Mr. President, that the present by-laws of the Clay Products Association be amended and that these new by-laws take the place of the ones now in use.

BY-LAWS OF THE BUILDING BRICK ASSOCIATION.

ARTICLE I.

NAME.

The name of this association shall be "Building Brick Association of America."

ARTICLE II.

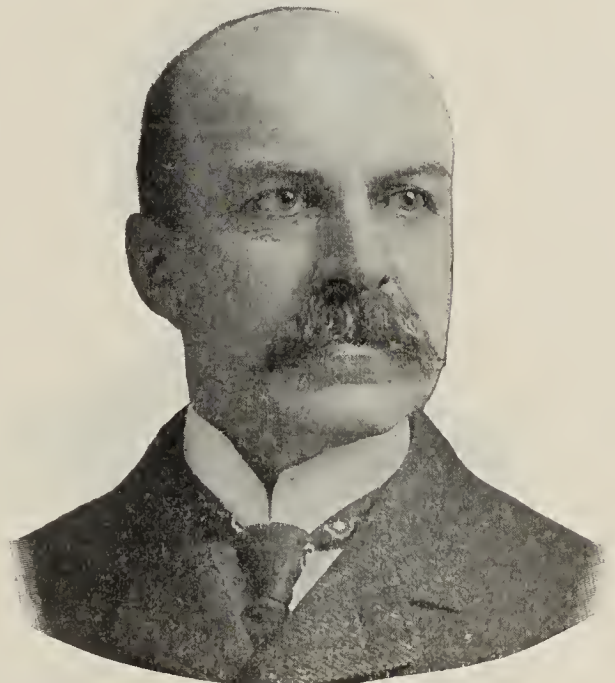
OBJECT.

The object of this association shall be the promotion of the use of building brick and the general welfare of the building brick business.

ARTICLE III.

MEMBERSHIP.

Any person, firm or corporation interested in the objects and purposes of this association, whose application shall be approved by the membership committee, shall be eligible to membership therein, and upon payment of the prescribed dues shall be constituted a member thereof.



R. G. Eisenhart, Horseheads, N. Y.

ARTICLE IV.

OFFICERS AND COMMITTEES.

The officers shall be a president, a vice-president, a secretary and a treasurer. The office of secretary and treasurer may be combined and the duties performed by one person if the Board of Directors shall so decide.

There shall be a Board of Directors of twenty-one, an executive committee of five, a membership committee of three, and a nominating committee of five.

The duties of the president, vice-president, secretary and treasurer shall be such as usually pertain to such offices.

The Board of Directors shall have complete and full control of the affairs of the association, of its funds and expenditures, and may delegate such power and authority to its executive committee as it may see fit.

It shall be the duty of the membership committee to receive applications for membership and to report its approval or disapproval to the treasurer.

It shall be the duty of the nominating committee, at the next annual meeting after its appointment, to make nominations for the ensuing year.

ARTICLE V.

ELECTION OF BOARD OF DIRECTORS AND OFFICERS AND THE APPOINTMENT OF COMMITTEES.

Upon the adoption of these amended by-laws, seven directors shall be elected for a term of one (1) year each; seven directors for a term of two (2) years each, and seven directors for a term of three (3) years each, and at each annual meeting seven directors shall be elected for a term of three (3) years each.

Upon their election, the Board of Directors shall proceed to elect from its number the aforesaid officers of this association, and shall appoint an executive committee consisting of said officers and

a sufficient number of its members to constitute an executive committee of five (5) and a membership committee of three (3).

The nominating committee shall be constituted as follows: Two (2) members by appointment of the president and three (3) members by election from the floor.

All vacancies shall be filled by the executive committee.

ARTICLE VI.

ANNUAL MEMBERSHIP FEES.

The annual membership fees shall be fixed by the Board of Directors and shall be assessed as follows:

(A) For manufacturers on a graduated scale based upon the yearly output.

(B) For all other members as may be determined by the board.

The schedule of fees for the ensuing year shall be announced by the Board of Directors at the annual meeting.

ARTICLE VII.

BOND OF TREASURER.

The treasurer shall furnish such securities for the safeguarding of the funds of this association as shall be fixed by the Board of Directors. The books and accounts of the treasurer shall be audited by a certified public accountant, whose report shall be presented at the annual meeting following the close of the fiscal year of the association.

The expense of said bond and said audit shall be paid by the association.

ARTICLE VIII.

PRIVILEGES OF MEMBERSHIP.

Any member who shall be in arrears in the payment of his membership fees for a period of thirty days after they become due shall be so notified by the treasurer, and if he shall thereafter fail to pay the said fees within a further period of sixty days, his membership in this association shall cease.



J. H. Chambers, Philadelphia, Pa.

ARTICLE IX.

MEETINGS.

The annual meeting of this association shall be held during the month of February of each year, at such time and place as may be determined by the Board of Directors. At least two weeks' written notice of the time and place of said meeting shall be mailed to each member.

Meetings of the Board of Directors and of the committees shall be held at the call of their respective chairman.

ARTICLE X.

RULES OF ORDER.

Roberts' Parliamentary Rules of Order shall be recognized as authority in proceedings of this association.

ARTICLE XI.

AMENDMENTS.

These by-laws may be amended by a three-fourths vote of the members present at any annual meeting, due notice of the proposed amendment having been announced.

ARTICLE XII.

RESIGNATIONS OF MEMBERS.

Any member of this association may resign membership by notifying the secretary in writing and by paying all fees which are due.

I move the adoption of the by-laws just read.

Seconded by several.

Mr. W. P. Blair: I want to speak on the adoption of these by-laws. I want to make a little amendment. I want to

amend Article IX, which reads, "The annual meeting of this association shall be held during the month of February each year at such time and place as may be decided upon by the Board of Directors." I move to amend that article by striking out the words "such time and place as may be decided upon by the Board of Directors" and insert the words, "at the same time and place as the meeting of the National Brick Manufacturers' Association." (Applause.)

Seconded by several.

Mr. Queisser: Mr. President, I really have no objections personally to that amendment, but there may come times and there may be particular conditions when it may not be deemed advisable to meet with the N. B. M. A., and this is left to your Board of Directors whom you elect. There is no reason apparent why that Board of Directors could not and would not appoint a meeting at the same time as that of the National Brick Manufacturers' Association, but there appears no reason why when we organize this association or reorganize the Clay Products Association—I do not want to use these words exactly, for this has been such a good and great organization, but we feel that this new organization springing from it will be so much greater and better and of such great benefit that the directors can vote as I said before, to meet with the National Brick Manufacturers' Association, but if we provide now that we meet at the same time we are making ourselves an auxiliary organization of this national organization. Now, we have our specific duties to perform, and, therefore, I wouldn't care to accept that amendment.

W. J. Snyder, Brazil, Ind.: I heartily endorse the statement made by Mr. Queisser. That section was carefully gone over; it was designed that we make a specific organization, and that amendment destroys that purpose, and I am not in favor of it. The wording of that clause was considered very carefully—the very thing that Mr. Blair now amends—and I hope that Mr. Blair will withdraw his amendment.

Mr. Blair: I will not withdraw that amendment and I will tell you why. For twenty-four years the brickmaking industry of this country and those interested in everything that pertains to it have gathered at this National Association, and I want to say that the time should never come when we should separate and divide it. We in the National Paving Brick Manufacturers' Association maintain in our constitution the very clause that I have asked for in my amendment. (Applause.) And for this reason, if for no other than that we want the influence and the encouragement and inspiration which comes from this parent organization, we are going to stay with it. I do not believe, I cannot make myself believe, that when that clause was presented to the committee it was discussed in the large phase that the subject demands, and I cannot believe that the progressive members of this new association would subscribe to any such statement.

Mr. Bloomfield: I agree with Mr. Blair. This Clay Products Association came as a result of a resolution I offered to this convention two years ago. It is the child of this National Association. It needs the influence and inspiration of this association. We need the influence and strength that will come to us year by year when this convention meets, and I think it would influence for evil, the good we are expecting to do by separating from this parent association. In the constitution lies the power. If the future shows that it is good to separate, the power to make the change is given in the constitution, but let us go on as the child of this association, deriving strength and inspiration from it. I insist on placing before this convention this amendment of Mr. Blair's and having a vote taken upon it.

Mr. E. J. Kane: Mr. Chairman, it strikes me that it was very convenient for the Clay Products Association to meet and call this meeting right here, and the reason is, that it is an auxiliary of this association. It owes its very being to this association. There is no one interested in it but members of this association. We would not have had anything to do with it if it had not been a part of this association, and the minute it ceases to be a part of this association, we will not have anything to do with it. The by-laws as read are excellent, but it contains a clause by which two members of the executive committee are to be appointed by the chair and three by the house. I think we must insist on one of two things—either have the amendment which has been sug-

gested or down the thing by voting against the by-laws as a whole and kill the organization.

Mr. R. C. Penfield, New York: I wish to speak in favor of the amendment. I am not a brick manufacturer; I am a machinery man, and we meet with this association, and I will always use my influence to get my concern to head a list to subscribe to and support any proposition that will tend to increase the use of brick. I believe the gentlemen who propose to hold the meetings of this new organization at some other place than that at which the meeting of the National Association are held are wrong. You get the greatest support throughout the United States by being considered a part of this National Brick Manufacturers' Association. You can hold your special meetings at any time or place that you please; but the place and time to hold your annual meetings is when we are all together. You can reach the members of the other associations, the Paving Brick Association, the Ceramic Society, the Clay Machinery men and every brick-maker throughout the United States, and you can appeal to them through this association and get a greater support than is possible in any other way. As you hope to succeed with the development of your cause, I will say to you, start right; start with the support of the National Association and you will get there.

After some further discussion Mr. Queisser withdrew his objection and moved the adoption of the By-Laws as amended.

The motion was seconded by Mr. Sibley and carried.

Secretary Fiske: We have to elect officers and are ready for the report of the nominating committee, of which Mr. Arthur D. Rogers is chairman.

Report of Nominating Committee.

A. D. Rogers, Boston, Mass.: We desire to present the following names, which we have arranged by states, for the Board of Directors. They are respectfully submitted for your consideration.

OHIO—

J. C. Adams, Iron Clay Co., Columbus, O.
L. G. Kilbourne, Columbus Brick and Terra Cotta Co., Columbus.
R. L. Queisser, Queisser-Bliss Co., Cleveland.
S. M. Gould, Ohio Mining and Manufacturing Co., Shawnee, O.

MASSACHUSETTS—

Arthur D. Rogers, Rogers & Manson, Boston, Mass.
J. Parker B. Fiske, Fiske & Co. (Inc.), Boston.

PENNSYLVANIA—

C. J. Henderson, Harbison & Walker Ref. Co., Pittsburg, Pa.
J. Howard Chambers, Chambers Bros. Co., Philadelphia, Pa.
Wm. Hanley, Bradford Pressed Brick Co., Bradford, Pa.
S. C. Martin, Kittanning Fire Brick and Clay Co., Pittsburg.

NEW YORK—

R. G. Eisenhart, Horseheads Brick Co., Horseheads.
E. J. Burke, New York Pressed Brick Co., Rochester.
E. A. Fisher, Sayre & Fisher Co., New York City.

INDIANA—

W. J. Snyder, Brazil Clay Co., Brazil, Ind.

MINNESOTA—

W. Siwart Smit, Twin City Brick Co., St. Paul, Minn.

ILLINOIS—

Thos. Moulding, Thos. Moulding Co., Chicago, Ill.
C. B. Vernoy, Illinois Brick Co., Chicago, Ill.
F. W. Butterworth, Western Brick Co., Danville.

ALABAMA—

John W. Sibley, Sibley-Menge Co., Birmingham.

NEBRASKA—

R. E. Sunderland, Sunderland Bros. Co., Omaha.

MISSOURI—

Ralph Simpkins, Hydraulic Pressed Brick Co., St. Louis.

J. Howard Chamber: I move the report be accepted.
Seconded by several and carried.

Mr. Queisser: I move the re-election of the same nominating committee which has just reported, composed of Mr. Rogers, Mr. Butterworth and Mr. Moulding.

Seconded and carried.

F. W. Butterworth, Danville, Ill.: The constitution calls for the election of these directors at this time to serve one, two and three years. I move the names of the directors just elected be placed in a hat and the names withdrawn, the first seven to serve one year, the next seven to serve two years, and the third seven to serve three years.

Seconded by several and carried.

Secretary Fiske: Gentlemen, the Board of Directors of this association has got to get busy and keep busy to get through with the work before us. I would suggest that we meet in the Dutch room tomorrow morning at 9:30. We have a hard day's work before us. I believe it will take us two days to finish the work before us.

On motion of Mr. Rogers the meeting adjourned.

FOURTH SESSION.

Friday morning, February 11, 1910.

President Blair: Gentlemen, the convention will come to order. The first paper of the morning session is "The Small Brick Plant and Its Relative Economy as Compared to the Large Plant," by W. D. Richardson, of Columbus, Ohio, but we passed over some of the questions for general discussion yesterday afternoon. The first of these is No. 17, "Why Do Shale Brick Cost More Than Clay Brick?" Unless some one volunteers, I will call on Mr. Richardson to answer this question.

W. D. Richardson, Columbus, Ohio: It will not take long to answer that question briefly. Any one familiar with a shale bank will know it costs more to mine shale than it does to mine clay. It is a much more expensive operation, so the increased cost of shale brick begins at the bank. Then in the factory there is an increased cost because of the preparation of the material, which must be ground to a fine condi-



Frank W. Butterworth, Danville, Ill.

tion so it can be mixed with the proper amount of water to make into brick. The grinding of a hard material like shale must cost considerable in power, if not in labor. Generally, the labor costs no more perhaps, but the cost of the machinery, and repairs on the machinery, and power to operate that machinery, is considerably greater with shale than with clay. Then, further on, you may say it costs no more to get the shale from the machine into the dryer or kiln. But a shale brick is more dense and is a heavier brick than clay brick, so that the handling of the green brick and the burned brick costs more. A shale brick will weigh from one to two pounds more than a clay brick of the same size. Then, being a more dense brick, it takes more fuel to burn a shale brick. A very noticeable cause for increased cost is in the handling of the burned brick from the yard to market, whether handled in wagons or shipped by rail. I omitted one point in favor of the shale brick, and that is in the drying. It is true that most shale brick dry very nicely and stand rapid work, and most surface clays are difficult to dry. The matter is so simple that I hardly think the gentlemen of the convention will care to go further with the discussion.

President Blair: The next question, No. 18, "What is the most practical method of grinding or pulverizing shale?"

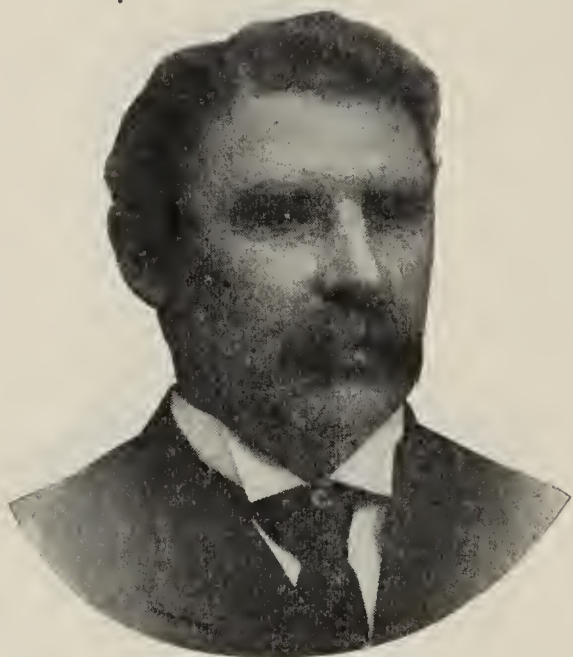
J. H. Mead: We are using a dry pan and we are grinding enough shale on that dry pan to make 50,000 brick a day. It is an old-fashioned pattern of dry pan, a Fisher dry pan, now made by Phillips & McClaren of this city, and only an

eight-foot dry pan at that; yet we put enough shale through the dry pan to make 50,000 brick a day. About four-fifths is shale and the other is clay. I really do not know whether it is the most practical method or not, but it seems to me it is about as cheap as it can be ground and then run over a screen, and the tailings from our screen goes through a conveyor and back into a dry pan. We get very good results from the amount of dry pan capacity we use.

President Blair: If the gentleman is in the house who asked that question, he might get a more satisfactory reply if he explained a little bit. I have heard a good many ways of grinding and pulverizing shale, but I never heard of a successful one except with a dry pan.

The next question, No. 19, "Is co-operation among brick-makers, with a view of creating better prices, practical? Does cutting prices increase volume of business?" It appears to me in answering this question, it would save a great deal of time if the person asking it will read the papers which have been presented in the last day or two. It seems to be the concensus of opinion of this convention that co-operation is absolutely necessary to the welfare of the brick business of this country.

This brings us to question No. 20, "Why is the price of brick on the decline, while the price of lumber is rising? What can be done to remedy it?" This question is very much of the nature of the preceding one. Does some member desire to answer this one? If not, we will take up question No. 21, "What are the advantages of metal over plaster molds



J. W. Robb, Clinton, Ind.

for roofing tile presses?" I would ask Prof. A. V. Bleininger to give us some information on this question.

Prof. A. V. Bleininger, Pittsburg: I do not know that I am prepared to answer this question as it should be answered. We have men here who are qualified to answer this question, and I would rather hear from them.

Molds for Roofing Tile Presses.

E. P. Elzey, Parkersburg, W. Va.: I would like to know if the party who asked that question means for hand or press work? I do not see very well how he could do successful work with plaster molds in using a press, for he is always going to be breaking his molds. We have found the metal molds decidedly the best and most practical. When it comes to economy, there is no comparison between the two. The difficulty is in getting a suitable metal or metallic substance with which to make the molds that the clay will not stick or cling to it. We manufacture from pure shale, which is not as clingy as some clays, and the best metal we have come across is a composition of copper and brass. We figured it out ourselves and we are willing to give any one the benefit of our experience. It is something that is very hard and will wear well and one that will not get your patterns out of shape and still have the oily surface, and does away with an oily lubricant. It is really a lubricant of itself, and the molds are always clean and in good shape.

President Blair: If you will only go a little farther now

in your answer to that question, I am sure it will be interesting to everybody using dies, in making tile and repressing work. What is the relative quantity of copper and brass in your molds?

Mr. Elzey: I cannot give it to you off-hand. I wish I could, but the parties who have made our dies, make them according to our directions. We tried them of steel and castings and everything else. We spent enough money to build a new plant in working on dies to get something that would prove satisfactory. I know what it is, but cannot give it to you off-hand. We use oil on our power press, but do not on our hand press. We have four tons pressure on our power press, and we use an oil which is specially prepared, and I can tell any one who wants to know where we get it.

President Blair: Can any one in the audience give us the proportions of copper and brass to use in making dies?

Marion Blair: There seems to be a little discrepancy in the material the gentleman is using. Copper is a metal, brass is a composition composed of copper and zinc chiefly. Now, if he is using copper and brass, he is simply mixing more copper with the zinc.

Mr. Elzey: I do not know enough about the composition of metals to answer that, but we use what we call a composition of copper and brass.

Marion Blair: You are simply increasing the amount of copper in the brass and hardening the material, the tendency of the copper being to harden it slightly. To harden it to a greater degree, some other metal must be put in, such as phosphorous. A phosphorent bronze is one of the hardest brasses we have. Every foundryman will tell you that he can make a composition that will do your work, and if you will pay him enough per pound, he will do it; but you do not know what you get, and nine times out of ten he don't know either, for he is using scrap to make the composition. Unless you go on the market and buy your own raw materials from a refiner of these metals, buy your own copper, buy your own tin and your own zinc and your own phosphorous, you cannot tell what you are getting in the brass or bronze. The only way is to get the metals separately and then make your own composition.

President Blair: Can any one go a step further and tell what the mixture of these various metals shall be?

Anton Berg: I can answer that question. The young man is correct when he says that phosphorous is a hardening bronze, and you only want to mix a small proportion of it in the metal. There are many ingredients in the metal, and it can be soft, hard or anything you like. There is what we call a chemical when we harden metal, that we can harden steel with and everything like that. We can make satisfactory dies that will do any work.

Mr. M. E. Gregory, Corning, N. Y.: I think if the members will get Kent's work they will get all these formulas. The book costs five dollars and gives formulas for making metals, etc.

Mr. Elzey: I thought the question in the first place was, which is the cheaper to use, plaster or metal molds, and that was what I attempted to answer, and not to give you the composition of our dies, though, as I said before, I can get it and give it to any one who wants it.

W. D. Richardson: I am responsible for that question being on the program, because I consider all these things of interest to the clay products manufacturers. I thought this would interest many of the roofing tile manufacturers who would likely be here. I have talked with the Germans who make roofing tile and have read in German papers, and they all say that good roofing tile cannot be made on metal dies; that you must have plaster molds, and that the oiling of the dies injures the quality of the tile. I do not know exactly what I do know about that, but I wanted to hear from some one who had tried making from both plaster and metal molds. The making of roofing tile on metal molds is of comparatively recent origin and has not proven a success in Europe, but that does not mean it is not a practical way to make roofing tile in this country. I mean on a power press.

R. C. Purdy: The question asked as to whether plaster or metal dies are preferable, depends entirely on the clay from which the roofing tile are made. If you are running the blanks through an augur machine and then press the shapes in a press, some clays will press without folding or

wrinkling and, therefore, will not carry the oil into the little crevices or wrinkles. Other clays will fold up and carry the oil into these folds and be reproduced in the burning. We have some clays which will work nicely upon the metal molds without giving any trouble. Other clays, so far as my experience is concerned, it is impossible to use anything but the plaster dies. It depends entirely on the nature of the clay.

Vice-President Rogers in the chair: This brings us to the first paper on the morning program, "The Small Brick Plant and Its Relative Economy as Compared to the Large Plant," by W. D. Richardson, Columbus, Ohio. It is hardly necessary to introduce Mr. Richardson to the convention. (Applause.)

THE SMALL BRICK PLANT AND ITS RELATIVE ECONOMY AS COMPARED TO THE LARGE PLANT.

BY W. D. RICHARDSON, Columbus, O.

Mr. President and Gentlemen of the Convention:

I am very sorry to have to begin my paper with an apology—an apology for the secretary and an apology for myself. About a week ago, among the letters delivered to my desk was one with the familiar stamp of T. A. Randall, secretary. I cut it open, peeked into it, and saw it contained a program of this meeting and what I supposed was the regular circular letter which the secretary sends to the members of the association. I laid it down, thinking when I had time I would look over the program. Just as I was starting for the convention I pulled out the program and put it in my pocket, and started to throw the letter into the waste basket, but, glancing at the address, saw that it was a personal letter, as follows:

"Friend Richardson—Presume you have received the program and have observed that you are booked for a performance for Friday A. M. Hope you will take the time to prepare a paper, and so save the overworked stenographer to that extent. How about it?"

As I have said, I was just leaving for the convention, and, of course, had no time to prepare a paper. Even had I been so disposed, my time here has been so taken up that I have not attempted to prepare a paper. I would not want to come to one of these conventions and spend my time preparing a paper. The best I can do is to say something on this subject extemporaneously. I must ask your consideration, for I am never sure what I am going to say when I talk in this manner. I am sorry for you, I am sorry for the assistant secretary, and I am sorry for myself.

I haven't had one word with the secretary since I came to the convention in regard to this matter until a few moments ago, when he said, "I suppose you have your paper ready." I did not take time to explain the situation to him.

I would have liked to have talked with the secretary and found out just what he wanted brought out on this subject. First, I would have liked to have had his definition of a "small" manufacturer. Whether he meant by a small manufacturer a man who makes two million brick, or one who makes five million brick or more per year. In the last week we received a commission in our office to design a kiln for a brick company. They wanted a continuous kiln, but we finally persuaded them they had better have a periodical down-draft kiln, especially since they had stated that their output was two thousand a day. They said they expected to perhaps double that before long. You would probably class this company as a small manufacturer. It may be interesting to state that the plant is not in the United States and that they probably get as much money for their 2,000 fire brick as many of you get for 20,000 to 25,000 common building brick.

Perhaps, for the purpose of discussion we may consider that any man or company that has an annual output of less than five million brick per year, is a small manufacturer. I know in some places that a man who is making five million brick per year is considered a large manufacturer, and we also know that in many locations in this country he would be considered a very small manufacturer.

The next question that comes to me is, why is he a *small* manufacturer? Why does he not make more than five million, or three million, or whatever his output may be? We may on this basis classify the small manufacturers somewhat as follows:

First, there is a class of brickmakers who are situated in small places in thinly populated districts, where the demand for building brick is necessarily small, and who must of necessity be small manufacturers. Those traveling about the country will find quite a difference in this class of small manufacturers. Sometimes we will find in a small town, with a comparatively small local market and in a thinly populated country, a brickmaker doing quite a large business. He has promoted the use of brick in his community. He has gone out to other towns and made an effort to sell his brick, and hence is making a great many more brick than another man in the same locality would.

There is another class of small manufacturers in large markets, who are small manufacturers because they have only a limited amount of capital. We know that to manufacture building brick on anything like a large scale to-day, a large amount of money is required. The small manufacturer often develops into a large manufacturer. If he understands his business and manages it profitably, he can secure additional capital for extending his plant.

There is another class, it seems to me, of small manufacturers, who never develop into large manufacturers. They are small manufacturers because they are small men, of small caliber. They don't seem to grasp the technical details of manufacture. They do not make the best kind of brick, nor make them in the most economical way. They try to be proprietor, superintendent and salesman, and sometimes more, and don't succeed very well in any capacity. These men very often do not read our trade journals, do not associate with their fellow-craftsmen, do not attend such conventions as these.

A month or so ago the secretary was in Columbus, and he said: "How can we interest, in the National Association, the small manufacturer? Many tell me the National Brick Manufacturers' Association is an association composed of large manufacturers, and there is nothing of interest to the small manufacturer, and I would like to get some one to talk on that question at the convention." And then he asked me if I thought he could get a certain man to discuss this question. I told him I hardly thought he could, and he went away without having asked me to prepare the paper; hence we are obliged to discuss this question without making the calculations which would make the paper valuable. The question is, "Can the small manufacturer make his brick as economically as the large manufacturer?" Must the small brick manufacturer be crowded out of business by the large manufacturer? We know that in some other industries the small man has been crowded out by the large manufacturer, in many cases, because the latter has been able to take advantage of the many developments in mechanical labor-saving appliances and many other things that cost a lot of money, and the small manufacturer cannot buy them and has had to go out of business because he could not afford the modern equipment to manufacture his product as cheaply as the large manufacturer. Now, is this true in the brick business? If I were to prepare a paper on this subject I would go into the matter thoroughly and make a large number of calculations to ascertain wherein men with the large plants can make brick more cheaply than the men with small plants.

Let's review briefly the operations in brick manufacture. First, take the power plant. In other industries we know the large manufacturer would have the most economical engine, perhaps a Corliss compound condensing engine, or a producer gas power plant, and thus generate his power much cheaper than the small manufacturer. But in the clay industry the situation is peculiar. In most of the brick plants heat of some kind is necessary for drying the ware, and there is no heat so easily controlled as steam heat, and hence



W. D. Richardson, Columbus, Ohio.

the man with the small, common engine can get his power about as cheaply as the large manufacturer, even should he have the most economical power plant. It can be shown that on a brick plant the ordinary steam engine is more economical than the producer gas engine, my recollection being that the advantage is about 5 per cent. in favor of the steam engine over the best results that can be obtained from a gas engine, because the exhaust steam from the engine can be utilized to do the drying, while the man with the gas producer engine has to get his heat some other way.

Now, in the operation of clay winning, the large manufacturer can use a steam shovel and the small one cannot, consequently you will say the large manufacturer can get his clay much cheaper. This may be true in some cases. It certainly is true if the small manufacturer gets his clay with the pick and shovel, loads it in the cart and hauls it to the factory. But if the small manufacturer is so located that he can slope his clay bank, plowing it and scraping it into a car under a loading platform, and can pull it up to the factory with a cable, he can mine about as cheap as the man with the steam shovel. So the difference in the cost of this operation is not material.

In the preparing of the clay and the making of the brick the large manufacturer has no practical advantage over the small manufacturer. Of course, the small manufacturer must have a man to dump his clay, and the large manufacturer may only use one man for this, but the same man in a small plant can look after the clay-preparing machinery, and in some cases can temper the clay, and the small manufacturer can handle per man as many brick as the large manufacturer, if he conducts his business economically.

Now, as to the drying. The cost of fuel and labor, to say nothing of the repairs and depreciation of the equipment, must be taken into consideration. In most cases the small manufacturer dries the natural way, with sun and air, while the large manufacturer must have his artificial dryer. His heat alone costs him something; even if he has a waste heat dryer, his drying must cost him ten or fif-

teen cents per thousand; and if he has a steam dryer, with the pipes under it, it may cost him 60 or 70 cents, according to the price of coal. So, in the matter of fuel for drying, the small man has the advantage over the large man. In the handling of the brick the large manufacturer has the advantage over the small manufacturer in that he puts his brick on cars at the machine, and the brick are not handled again until they come to the kiln. While the small manufacturer handles his brick from the machine to the truck and then to the yard or racks, but by the most modern system of handling brick in large units, by lifting trucks or cars to the natural dryer under sheds, and picking up the same large units for transportation to kiln, there is not so much difference in the cost of handling.

In the matter of burning: The large manufacturer may have a continuous kiln. The small manufacturer cannot do this. He probably has the open clamp kiln, possibly he may have a closed down-draft kiln, not because it means much in the economy of fuel, but because it means a larger percentage of high-grade ware. As a matter of fact, however, in this country the large manufacturer burns most of his ware in the same type of kiln as the small manufacturer. Thus, with the small manufacturer, the cost of burning is practically the same as with the large manufacturer. When continuous kilns come into general use, it is possible for the small manufacturer to have a continuous kiln. The open-top continuous kiln, built below the yard level, is about as cheap in construction as the ordinary up-draft kilns.

There is another item in favor of the small manufacturer, and that is the item of interest, taxes and insurance. The small manufacturer in this has the advantage, and quite a big advantage, especially in times of depression, when his plant is idle. His expenses are very light then, while with the large manufacturer, even when his plant is standing idle, expenses are heavy.

It can be seen, therefore, that the small common-brick manufacturer, who does more or less of a local business, can manufacture quite as economically as the large manufacturer, and I do not believe the time is ever going to come when he will be driven out of



Wm. Conway, Philadelphia, Pa.

the market entirely. It is true, if a man is manufacturing a product that he must send over a large territory, because he has a small local demand, like the manufacture of face brick, for instance, the situation is different. The cost of the selling of brick, especially where the business must be carried on at a distance, when you must ship the brick and depend on other people to sell the brick and to make collections, is so great that we often have to say to the man proposing to make face brick on a small scale, or to the man who has a small face brick plant, that we do not think it is a practical thing, that it can be made a profitable investment, unless he has a local market for most of his output. In the first place, you cannot get the proper man to handle the brick of a small plant in a large market. Such men do not find it pays to represent a small concern, since there is too great risk of the small man falling down on his orders.

I am glad to know that I belong to an industry in which the small manufacturer can continue to thrive, and in which there is no immediate prospect of his being driven out of the market by the larger manufacturer. It is a question that is of interest to a great many; indeed, it is of personal interest to many of us. It has been a question I have considered from a personal standpoint many times. My experience in the brick manufacturing business has been entirely with the large companies and large capital, and, like other men starting in the brick business, I have the ambition sometimes to own a plant of my own, but when it comes to the question of saving from my salary enough to build a brick plant, I could not save enough to get a controlling interest in such plants as I have managed. In traveling about the country the last two or three years, I have seen things which have made me take another view. I have found that the small manufacturer in many ways has the advantage over the large manufacturer. Last summer I was engaged at a plant making some investigations, and after getting through with my business there, I went across the railroad and looked over another plant. It was a dry press face brick plant—a business I have been pretty familiar with, having spent a number of years in that line. I went over the plant and saw the buildings were nothing but

temporary structures, frame sheds which had been roofed over. For the power plant there was a traction engine that could be taken out and run any time on a threshing job. The machinery was in keeping with the rest of the plant, and consisted of a cage pulverizer, a bucket elevator and stationary gravity screen, and a two-mold dry press. Most of this equipment had been purchased second-hand, and the whole plant, including one down-draft kiln and two clamp kilns, probably did not cost more than \$10,000. At the time I was there they were not gathering clay. There was one boy in the shed, with a horse and scraper, scraping the clay over to the pulverizer. Another boy was feeding the pulverizer. The next man was the man at the press, and two men were trucking and tossing the brick in the kiln for one setter. Then there was the engineer, who fired the boiler and looked after the engine and the machinery in general. Seven or eight men at the most were turning out 10,000 brick a day. The owner was not bothering about any other than the local market, but he was just turning out a good pressed brick and making money.

I believe there is encouragement in this for the man who wants to be a small manufacturer, and I do not believe he can be driven out by the large manufacturer. (Loud applause.)

General Discussion.

Secretary Randall: You all realize now that you have heard Mr. Richardson, that no mistake was made in assigning him this topic. It is really one of the important questions to be considered here today. There is a misapprehension in the minds of many as to the benefits to be derived from attending these meetings. Some think that only the large manufacturers profit by these gatherings. As a matter of fact, the small manufacturer has more to gain from our deliberations than his big competitor. Mr. Richardson has told you why this is true in some respects. As a rule, the small manufacturer must be thoroughly informed as to every detail of his work. Ofttimes he is owner, manager, superintendent and not infrequently head burner as well, and must have a practical knowledge of every detail of the business. The large manufacturer cannot possibly give personal attention to all these details, and must, as a rule, depend on his employes, and if, as is sometimes the case, his skilled help proves unskillful, he suffers a loss where he had fully expected to make a profit. This is one of the handicaps that the large manufacturer has to contend with. He has a large investment and sometimes when he thinks he is really making money, he finds when the books are balanced that owing to little leaks in one department or another, that his profits were wholly imaginary. You know a little leak will sink a big ship. It goes without saying that with efficient help in every department, the large manufacturer can make brick some cheaper than the small manufacturer, but as a rule the small manufacturer who is wide awake and sufficiently progressive to attend a convention, does not have to take off his hat to any of his competitors. I am sure that there are a number of small manufacturers here at this time who will testify that the information gained at these and similar gatherings is of much practical value. The discussion of various details of the business is always helpful, and especially so to the small manufacturer who must direct and supervise every feature of the work about his plant. It is true, though, that the large manufacturer is unwise who fails to attend our conventions and touch shoulders with the progressive, bright and successful men who keep abreast of the times by personal contact with their fellow manufacturers. It has been demonstrated that it not only pays the large manufacturer to attend these meetings, but it pays in dollars and cents for him to bring his superintendents and foremen. One of the most successful brick manufacturers I have ever known has for years made it a practice to bring his superintendents and foremen at his own expense, and he has told me time and again that no money spent during the whole year brought him a better return or proved a better investment than the bringing of his employes to the conventions. So you see, the large and the small manufacturer both profit by these meetings, but as between the two, I believe that the small manufacturer has the best of the bargain, and has more to gain by attending the conventions. With your permission, Mr. President, I want to ask one of the small manufacturers present to express his views on the subject, and I now call on my friend Mr. Evans Jones, of Pittsburg. He can speak from experience, for he has missed but few conventions since we met in Pittsburg before, twelve years ago.

Mr. Evans Jones, Pittsburg: It is a very hard matter for a man to get up here and talk on any subject, especially

after the class of men we have had talk to us at this convention, but every man can talk a little common sense. There is no disease that will affect the big or little manufacturer as much as the habit that will make a man stay right at his work and think he knows it all. I want to say to you, that if some person would offer me a hundred dollars to stay away from this convention, I would say to him, "You keep your hundred." We are up against a great many problems in this business and we have to do a great deal of thinking. We have to spend money in order to keep up with the procession. What Mr. Randall told you of the advantages and disadvantages of the big and little manufacturer is right. I have been in the brick business for a good many years. It was a necessity that made me go into the brick business. The first necessity was, that I had a piece of property and I figured it up what it would cost to remove the dirt on it and bring it to a grade to make it sell, and found it was going to cost too much money. The next thing was, what can I do? I figured out that I could put up a brick plant and manufacture the dirt into brick and come out ahead. Today we are reducing a second piece of property and are operating a plant on a small scale. We are reducing this piece of property fifteen, twenty or twenty-five feet, down to grade. When we started in on that piece of property it was worth perhaps \$50 or \$75 a front foot; now it is worth more than \$200 a front foot. So you see I am working both ends. There are a great many things connected with the brick business that require good head work. I have had a great deal of experience with concrete, experience with all kinds of work, and I want to tell you that in my experience there is nothing that can take the place of brick. We had a very intelligent lecture here the other evening by one of the leading architects of the country. It is a fact that for the purpose of ornamentation and beautiful buildings nothing can equal brick. Neither can anything equal it for foundations and sewers, and I know, for I built one of the biggest sewers in this town of brick, and there is nothing that will equal brick for that purpose. Brick is the cheapest material you can put in foundations. It is the strongest and safest, and there is no question about that. (Applause.) You can talk as you please about concrete, but if you put in concrete honestly in a building, especially above the ground, it will cost you a great deal more than brick will. (Applause.) And at the same time there is always a question of doubt about that material. Now, some person may say he knows little or nothing about it. Forty years ago I worked in concrete and I know all about it. I can show you samples of artificial stone made out of concrete by a stone man that were made in the fall and thrown out in the weather to see what it would be in the spring. I say this to tell you that I know all about concrete, but I can tell what I know only in a crude way. Many times the college professor knows all about these things, but only theoretically. I have worked with concrete and I am competent to tell you that it can never take the place of brick. I want to say to this convention that the greatest mistake we are making here, and the greatest mistake we are making everywhere, is that we have too poor an opinion of brick and its great use. (Applause.)

E. J. Kane: I feel as though I must not keep still when I have a chance to speak on this subject. I have sat here through the convention and every one that I hear has told me something that I did not know before. At last we come to a subject that I know something about, for when I heard of small brick manufacturers, that hit me. Notwithstanding last year was the first national convention I had ever attended, I made up my mind I had to speak now, for if I go on attending these conventions I won't stay small. (Applause.) I am in the happy condition of the school master who had a complete knowledge of the subject of honesty. "Honesty is the best policy, my hearers," he said; "I know, for I tried both." (Laughter.) But I haven't got the sense of Mark Twain, for you know Mark Twain sat quietly listening to a discussion between two friends on the subject of heaven and hell. At last, when pressed for his opinion, he said: "I hardly like to express an opinion in regard to the two places, as I have friends in both." (Laughter.)

There was one point that was just referred to by Mr. Randall but slightly, or perhaps it was Mr. Richardson who spoke of the disadvantages under which the small manufacturer labored when it came to disposing of his ware, due to

the fact that they were not attractive to the sale agency. This is partly true in the sense that he cannot furnish a large order that they want. On the other hand, he has a great advantage. I think that some of the very best agencies secure their very best brick from the little fellow who can devote his attention to a special line for which he can ask a very high price. The little fellow can afford to suspend work a little while he experiments to get something that is especially desired, while the big manufacturer cannot afford to suspend work while he experiments, for if he is interrupted it means the interruption of work in different departments; while the little man can afford to experiment and do just exactly as he pleases, and can turn out a fancy brick, for which he can get a fancy profit. There are people who have found the profit in their business by just such things as this. I was told not long since of a man who had a little yard. It just happened that an architect wanted a certain kind of brick that this man was able to make and with which one of the handsomest buildings in the town was built, and the brick-maker made a handsome profit. If the brick works could not have stopped running on their regular product to make this fancy material, the owner would have lost this profit. I say this to the small manufacturer, for the purpose of encouraging them. We can't all make front brick, but we can often turn out a special product that will be a great success. (Applause.)

J. Fred Smith, Omaha, Neb.: Twelve years ago I attended my first convention. It was held in Pittsburg. I was a small manufacturer of brick at that time and I have attended most



J. Fred Smith, Omaha, Neb.

all of the conventions since then. At that time we were making three million brick a year. Last year we made eighteen million. (Applause.) So you see we have progressed. I have had more satisfaction coming to these conventions and have had more good financially than in any other way. I just wanted to tell you an experience I had in Pittsburg twelve years ago. As I said before, I was a pretty small manufacturer and I left home feeling pretty small. I had with me a letter of introduction to Mr. Randall, but I failed to bring enough money to see my way through. I did not know what to do. I was walking around the lobby of the hotel and I met a very nice gentleman. I got to talking to him and finally I told him my trouble. And I will tell you right now if you have any troubles, go to a Pittsburg man and he will help you. This man said, "Why, I will help you out," and he took me down to the bank and got me what money I needed. I want to introduce that gentleman to you. He is Mr. Jones, who has just spoken to you. (Applause.)

W. D. Richardson: A gentleman said to me a few moments ago, "I wonder how many small manufacturers there are here?" I think it would be quite interesting to know, so taking as a basis five million or less annual output, how many members attending this convention make less than five million brick per year? I would like to have them rise.

Vice-President Rogers: Will the gentlemen making five million per year or less kindly comply with Mr. Richardson's request?

A large number of those present stood up.

Mr. Richardson: I think, gentlemen, that goes to show that the association does interest the small manufacturer. I was glad to have Mr. Smith make the statement he did. I think he is right that the man who attends these conventions will not long remain a small manufacturer. The man who thinks he is too small a manufacturer to attend these conventions is the sort of a man who will never develop into a large manufacturer. He does not know that it is a characteristic of the man who develops into a large manufacturer to associate with his fellow craftsmen and to take every opportunity of learning more of his process of manufacture, and he knows he can get more information and more satisfaction and inspiration for the coming year by attending such meetings as this, than in any other way. (Applause.)

Vice-President Rogers: We are all indebted to Mr. Richardson for the able talk he has given us on this subject. Does any other member desire to talk on this question?

W. E. Ellenberger, Hiram, Ohio: I came to this convention to get courage. I have started in to organize a company in a small way and was getting almost discouraged, but I have got just what I was looking for this morning. (Applause.)

Anton Berg: I appreciate very much all that Mr. Richardson has said, and we are indebted to our secretary, Mr. Randall, for giving this subject a place on the program and for the high class of speakers we have had at this convention.

Vice-President Rogers: The secretary will kindly announce the number on the program.

Secretary Randall: The next number on the program was to have been a paper by Mr. Ferdinand Vogt, of Milwaukee, on "Advantages of Artificial Draft as Compared with Natural Draft in Drying and Burning Brick." Mr. Vogt was unable to meet with us or prepare a paper on that subject, so we will have to pass on to the next topic.

Paving Brick Literature.

Marion Blair: Mr. Chairman, I wish to say a word in regard to some of the literature published by the National Paving Brick Manufacturer's Association. I know you had an advertising lecture yesterday and had advertising rubbed in pretty hard, but I believe you can stand a little more. I want every man in this room to be familiar with the literature sent out by the National Paving Brick Manufacturers' Association for the benefit of the paving brick business, to extend and increase the use of brick for paving material. Many of you have plants located in the country and have a bad road to your plant. Many of you could influence the paving of that road and other roads in your county. Brick paving for country roads is certainly developing. We have a list of literature published by this association and a list of the photographs which we have in our office showing the merits of brick paving as compared with any other paving material. Brick stands up the best, let me tell you that, and I want you all to take back home with you a list of that literature, so that you will have it on file and we will be glad to have you write us at Indianapolis to send some of this literature to some of your neighbors and friends, so that they may have it in their homes, so that when they sit down to read their evening paper they can have this literature before them and absorb some brick information. We have here specifications for paving brick pavements. We also have pamphlets, illustrated with photographs, taken during the construction of the Indianapolis Speedway, the greatest race track in the world. It is paved with brick and is two and a half miles long and fifty feet wide, and they are going to break every automobile record in the world on that track during the next meeting. We have another pamphlet called "Permanent Roadways," and this deals with country roads and highways, which demonstrates the fact that brick is the best material for country roads. Macadam and gravel and other materials have failed to stand up under the traffic. The best material to put into these roads is brick, and you want to tell your neighbor about it, so I am going to pass through the audience and give every man a bunch of this literature.

Secretary Randall: Our discussions are taking so much time that I move that we adopt the five minute rule for the balance of our discussions and that no individual speaks twice on the same subject without unanimous consent.

Seconded and carried.

Secretary Randall: The next number on the program is a

paper on "Producer Gas as a Fuel for Burning Clay Ware," by Mr. Geo. C. F. Vater, of Kansas City, Mo. Mr. Vater is a cosmopolitan; he is from Kansas City, St. Louis, Dayton and a number of other places.

PRODUCER GAS AS A FUEL FOR BURNING CLAY WARE.

BY G. C. F. VATER, KANSAS CITY, MO.

Mr. President and Gentlemen of the Convention:

During the last few years great interest has been manifested by the clayworkers of this country in the matter of continuous kilns, both of the direct-fired and the producer gas-fired type. A good deal has been said on this topic in previous conventions and in the trade journals, and I shall hardly be able to complete my paper without loading upon me the odium of having repeated a great many statements, etc., that have been made before and that are known to all of you.

To start with, I will say that at the present time, though numerous attempts have been made, the application of producer gas to periodical kilns from a central producer plant seems still to be in its infancy. Down-draft kilns, however, with producers built against them and operated with hot air for combustion are on record and said to yield considerable economy.

A great number of down-draft kilns, the country over, are equipped with furnaces, approaching a simple type of producer, which, during the latter half of the burn, are run on the order of producers, but with cold air, and are giving an economy of about one-eighth compared with the ordinary furnaces.

The proper field of the producer gas from its nature is the furnace or kiln which embodies recuperative or regenerative features, i. e., a kiln which allows of the preheating of the secondary air to red heat. Such a furnace is the continuous kiln, in which the further advantage is obtained that the ware is preheated to within a range that can be covered by say a day's actual burning



G. C. F. Vater, Kansas City, Mo.

with fuel. Thus we have the most favorable conditions for the combustion of producer gas combined. Hot gas, incandescent air and an incandescent body to favor support of ignition. These conditions result in the fact that the amount of air necessary for the combustion of producer gas is only about 1.2 to 1.3, the theoretical amount of air required (16 to 15 per cent. CO₂). This point greatly argues in favor of the gas-firing, resulting in a higher initial temperature, and also in the smallest possible loss of heat in the outgoing waste gases. Indeed, the gain seems to be such as to make good the losses incurred in the producer and those in the convection of the gas from producer to kiln.

Comparisons with actual results of top-fired continuous tunnel kilns of best design only show an advantage of one-half to one pound of coal per 100 pounds burnt ware. This will not be surprising if we bear in mind that these kilns work with an excess of air equal to four to eight times (more nearly to eight) the theoretical amount required.

The slight difference in the amount of fuel, in my opinion, rather comes from the greater bulk of brick work in shape of the partition walls, that have to be heated up along with the ware. In support of this, I wish to say that we find about the same difference between top-fired tunnel and compartment kilns.

Agreeing, therefore, that the relative economy of direct-fired and producer gas-fired kilns is practically the same, how can we justify the existence of the latter and the headway it is making in modern brickyard installations?

The points to be argued pro and con a burning apparatus will be about as follows:

1. How much labor is connected with the getting the fuel to the kilns; how much in handling it in burning; how much in cleaning the fireplaces after burning?

In the case of the gas-fired kiln the coal is all handled at one place, which conveniently will be located near the railroad switch track. One man can handle the coal for burning 20,000 to 100,000 brick. The ashes are all drawn on one small space, and as they

are wet and dustless, their removal only requires a short time every day.

2. *How well in the hand* of the burner is the heat in the kiln?

Here we find that in the gas-fired kiln we have in the gas a fuel that can be regulated and distributed to a degree of accuracy not possible with coal, and without requiring an extensive experience and skill as, for instance, in direct-fired continuous kilns.

3. To what degree of *uniformity* may the ware be burnt?

From actual measurement the heat in a gas-fired kiln need not vary more than two cones (72 degrees) from top to bottom; in fact, with proper arrangements, one cone has been obtained and an output of 95 per cent. A1 ware is or should be the common rule, while with direct-fired tunnel kilns 80 to 85 per cent. questionable A1 ware is the average. In one case a short time ago I found 40 per cent. seconds on a place in southern Indiana. Obtaining a uniform temperature in direct-fired kilns is a very difficult matter.

This question also includes the matter of clean ware. Naturally this is absolutely obtained in gas-fired kilns, while in direct-fired kilns, especially where somewhat higher temperatures are used, and eventually a coal with ashes fusible at these temperatures, there is a considerable waste by brick to which the ashes are fused.

Even for common ware we may therefore find sufficient inducement to employ a gas-fired tunnel kiln instead of a direct-fired continuous kiln, and figure that by the elimination of labor and the higher percentage of A1 ware we shall be amply reimbursed.

The better grades of ware as face brick, paving brick, fire brick, roofing tile, salt-glazed sewer pipe, hollow ware and drain tile, however, will demand a kiln of the compartment type, though hollow ware and drain tile, if manufactured and burnt in conjunction with brick, may be burnt in a tunnel kiln.

Let us take the different kinds of ware now and look for features of the gas-fired kiln which will prove especially valuable in burning them. The time, of course, is too short to elaborately treat these points.

Whenever it is desired to burn face brick from red or light-

The utilization of this water-smoking arrangement is to be recommended on the ground of its above-named merits, as well as from the standpoint of economy, brought about by using excess heat of the cooling ware.

In burning paving brick we find that the gas-fired kiln is equipped with some very valuable features. Of these the uninterrupted oxidizing atmosphere in the kiln is one. In addition, we find ideal conditions in the cooling process, which are very gradual, extending over six to eight days. The cooling is progressive and in each compartment done by air only slightly cooler than its contents. Further, a compartment may be eliminated or shut off altogether, allowing it to cool down to a certain extent, without drawing any air through it. That a kiln of this type should turn out a perfect paver will therefore be only natural.

In burning salt-glazed sewer pipe, also, records show the gas-fired kiln in its right and turning out perfect ware. In this case again we have to make use of the arrangement for cutting out the finished compartment to let it cool without drawing air through it. During the salting process the vapors are naturally drawn off at short range (one compartment) to avoid damage to the ware which has not as yet reached vitrification, and on which the salt vapor would condense and on further heating melt and be absorbed.

Little is to be said about the other ware as to special features. Roofing tile, hollow ware, drain tile, etc., will partake of the general advantages first enumerated, and which obviously make the installation of a producer gas-fired continuous kiln a paying and satisfactory investment. (Applause.)

General Discussion.

Vice-President Crook in the chair: Has any one any questions they want to ask Mr. Vater while he is up here in front?

H. R. Straight, Adel, Iowa: How do you introduce the salt evenly all over the kiln?

Mr. Vater: The salting is done at the top of the kiln through the crown vents. An apparatus is inserted in these vents, consisting of a disc attached to a vertical shaft, which is operated by a simple crank and bevel gear. The salt is thrown on the disc and by turning the crank, whirled off the disc and distributed all over the ware. The same performance is gone through with at each crown vent, the salting thus taking only a few minutes. I will give Mr. Randall a sketch of this apparatus that he may publish it.

Vice-President Crook: Are there any other questions or any further discussion of the paper? If not, we will pass to the next number.

Secretary Randall: The next on the program is a paper by Dr. Holmes, but he came to me this morning and said he had a very important engagement he had to keep this morning and begged permission in case he did not get back in time, to present his paper this afternoon. This brings us to the paper by Anton Vogt, of Ada, Okla., on "Utility and Economy of Open Top Kilns as Compared with Down Draft Kilns."

UTILITY AND ECONOMY OF OPEN-TOP KILNS AS COMPARED WITH DOWN-DRAFT KILNS.

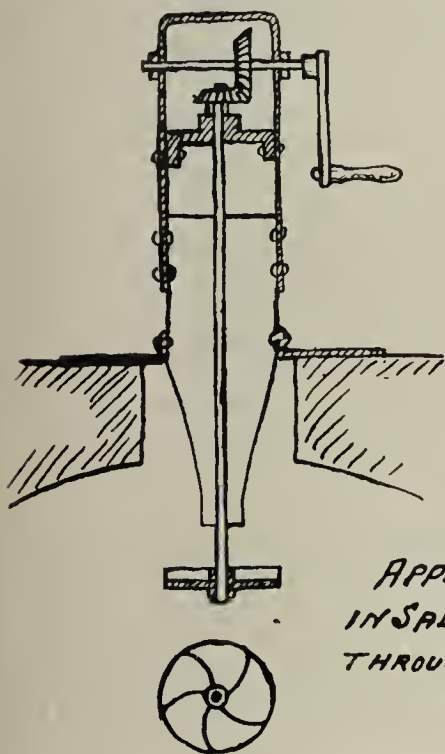
BY ANTON VOGT, FORT SMITH, ARK.

Mr. President and Gentlemen of the Convention:

Your most honorable secretary, Mr. Teddy Randall, has requested me to write a paper on the above subject and I feel like a doctor who is called upon to write a paper on the utility and economy of patent medicines as compared with his prescriptions. The doctor does not believe in patent medicines and I do not believe in open-top kilns. Mr. Randall had the cart hitched before the horse and I just had to unhitch in order not to present something like the wonderful horse which Barnum once advertised. A horse that had the tail where the head ought to be and the head where the tail ought to be. Barnum simply turned the horse around and placed a bale of hay to the tail end of the horse.

To return to our subject, I do not know of any real economy or utility of an open-top kiln, while I have spent years in perfecting the designs for a down-draft kiln that can be constructed as cheap as an open-top kiln. If any of you have any arguments to the contrary, I would be glad to answer them by correspondence. Mr. Randall can furnish you with my business address. When you have seen my plans you will not be content to struggle on with your up-draft kilns.

To be fair, I will say that where gas or oil can be had, the open-top kilns have a certain degree of economy and utility in burning common building brick and also a few face brick. This economy I attribute to the regularity of the moving heat, which can be nicely regulated by a careful burner. Admitting this much, I know from experience that down-draft kilns possess greater utility and greater economy when everything is taken into consideration. For instance, the number of soft brick under the platting on the heads and ends of the open-top kilns, over-burned, twisted and melted brick in the arches; and the wagon loads of bats, the result of too fast water smoking and settling the kilns. Then the arches giving way, the expense of platting and removing the same; the almost killing labor on the top of the hot kiln to open or close the platting during every stage of the burn; the opening or the entire taking down of the shed; the damage sometimes caused by a leaky shed, the lumber being warped and split after one sea-



APPARATUS USED
IN SALTING SEWER PIPE
THROUGH CROWN VENTS.

burning clays in the normal ferric color, it is absolutely essential to conduct the burn under perfectly oxidizing conditions. The prompt destruction of the true red or buff by anything like reduction, even for a very brief period, is too well-known a fact as to need further comment.

We also know how difficult it is to maintain these desirable conditions in periodical kilns, while with the continuous kiln the oxidizing condition is the natural one.

On the other hand, where desired or necessary, with the producer gas-fired type reducing conditions of any degree or duration may be created. This latter feature has proven very valuable when burning flashed ware, which indeed is handled successfully in this type of kiln.

With clays again containing concretionary grains of iron or pyrites, these will show as slagged spots or blotches in ware burnt in down-draft kilns, while the conditions of the gas-fired kiln are such as to overcome this calamity, maintaining the concretionary iron in its ferric form and roasting the sulphur from the pyrites. This fact is not only important for face brick, but also for fire brick, whose value is greatly enhanced by the absence of the fused iron spots, which at one time were looked at as a mark of honor.

We may at this point mention one very valuable feature of a modern gas-fired kiln, which consists of an efficient arrangement for water-smoking. This water-smoking is done with pure air heated by the cooling ware.

The degree of heat to which the water-smoking compartment has to be brought will vary according to the kind of ware, but more especially according to the amount of sulphur contained in the coal, viz., the waste gases. While with a coal of low sulphur contents it may be possible to finish the water-smoking with about 200 degrees F., it is necessary to water-smoke to about 300 or more when using coal high in sulphur, in order to avoid the so-called scum or whitewash (consisting mostly of Ca SO_4 and $\text{Al}_2 \text{ SO}_4$, and probably silica).

son's run. You should consider all these adverse conditions and seek to avoid them. It's true what the friends of the open-top kiln say: That you can back up your wagons into the kilns and also can load from all sides if temporary walls are put up. Yes, you can load from all sides, but it takes away a large per cent of your profit to tear down and build up these temporary walls every time you fill a kiln. This and the expenses caused by the disadvantages mentioned could be put into down-draft kilns and a few sections of gravity brick carriers, thereby stopping unnecessary expenses. You can load your brick just as fast and as cheap, if not cheaper, by running them on the ball bearing rollers to the wagon outside the down-draft kiln door or by loading directly into cars. If a market supplied by wagons is your only dependence, then you'd just as well quit the brick business, unless you are located in a large city where there is a big local demand for your output. Even then the down-draft kiln makes it possible for you to have better brick to haul on your wagons, for you can get a good kiln of brick every time. There is no guess work about it if your burner understands his business. How many of you while burning an open-top kiln have taken down the shed, saying: "Well, if it doesn't rain and if it doesn't get too windy, and if I have good luck I expect to get a good kiln of brick?" How many times has it started to rain while you were raising the heat, thus washing many thousands of brick? How the wind blew, driving the heat from side to side of the kiln. How often has the pouring rain softened the ground causing your braces to slip, letting the temporary kiln walls fall and exposing the red hot unfinished brick to the rushing air, losing all your heat and forcing you to stop to straighten up the collapsed kiln and put up the walls before you could start the fire again? If you have not had any such experiences, I have and maybe your friend on the left or right has. If these are ladies, ask the next man.

When I mention these accidents I mean they have happened with the real old-fashioned open-top kilns with temporary walls and temporary sheds, but those who have open-top kilns with



L. L. Stephenson, Birmingham, Ala.

permanent walls and permanent sheds that can be opened know that they have lots of troubles and losses not possible with down-draft kilns.

For instance: "Fire! Fire! The open-top kiln brick plant at Lumbershed, state of Combustible, burned to the ground! The fire originated in the kiln shed. The whole plant was badly damaged. Only the down-draft kilns are standing." Have you not noticed these monthly reports of brickyard fires in the clay journals? Who knows, your open-top kiln brick yard may be on fire now while you are away from home. If not, it may burn down tomorrow, next week, next month, next year, or never. Who knows? Does it not stand to reason that everything connected with your kilns should be fireproof? Is there anything more fireproof than a down-draft kiln with a brick arch? Think about it and stop to talk about it. Utility and economy of open-top kilns!

Why buy the best of machinery, boilers, pumps, heaters and engines and neglect the most important part of equipment in the brick business, the kilns? I can not comprehend this, can you? But I can tell you the cause of this in many cases. When asked about the kind of kilns to be constructed the brick machinery salesman says that the open-top kilns are good enough and cheap. He does not want his customer to know that he is ignorant about kilns and, of course, suggests something cheap, so that the prospective brick maker will not get scared after having bought his machinery at a good stiff price. So the victim sets his brick on a piece of ground, puts walls of green brick around it, and not until after he has met with failure after failure does he realize the mistake he made in not constructing the right kind of kilns at the start.

It is my opinion that some (not all) machinery people meddle too much with the kiln men of this country when they offer and send out kiln plans free to purchasers of their machinery; kiln plans that look very well on paper, but are largely the offspring of theory and are worthless in practice. When it comes to a show-

down, the machinery people themselves do not know how to handle any kiln, especially to customers from Missouri, and the time is coming when they will have to demonstrate to all, no matter what state they are from. "Shoemaker, stick to thine last," is an old proverb and a very true one. Let the machinery man sell his machinery and let the kiln man furnish the kilns.

You brick makers know that you can not get something good for nothing; if you do, you certainly pay a higher price for your machinery. Let your kilns be designed by practical men who are experts in their line. Men who have fired kilns of all kinds, under all conditions; men who have waded through snow and water, who have been on duty hot summer days and cold winter nights; men who have experienced all the ups and downs of kilns by day and by the light of the kiln fires at night.

When you want a boiler made you would not go to a harness maker to make it for you, and you would not hire a tailor to fire the boilers, but you would go to a boiler maker and hire a man who had had experience in firing boilers. Then, why don't you consult a practical kiln man or competent engineer, one who has had practical experience, and let him design your kilns to suit the kind of ware you wish to make? Then hire a competent, sober man to fire your kilns or to oversee the firing, if you have many kilns, and, if you take my advice, I am sure some of you would not have to worry about the expenses to come to the convention of 1911.

What I have said is the outcome of many years of experience, and of many years of observation as I traveled about over this glorious country, where the working man is the best housed, best clothed, the best fed—and I may add, as the secretary of agriculture, Mr. Wilson, recently quoted—"the most expensively fed on the face of the earth," at the present time. If food prices continue to soar we may have to quit working clay and, like a part of the inhabitants of some of the southern states, take to eating it. (Applause.)

Secretary Randall: This brings us to the first of the questions for discussion, but before taking up the questions I want to say that this afternoon's session will probably be the most interesting of the series, and I hope we can have a full attendance. It will include an illustrated lecture.

QUESTIONS FOR GENERAL DISCUSSION.

The first question is, "What is the future of the hand yard?" Now, you may laugh at that, but it is a legitimate question. Some of these questions may seem a little primitive, but they come from districts where the process of manufacture is primitive. This man probably has a hand yard and he is wondering if he is going to be run out of business by the machine yard. I think this question was covered pretty thoroughly this morning. I think most of you will agree that the future is what it has always been—the hand-yard man will continue to make brick by hand until he decides to put in machinery.

The next is a question that has always been interesting, No. 28, "What is the best and cheapest method of eliminating whitewash from dry press brick?" Here is your ghost that will never down. Banquo is here. We always have that question, and we usually call on Prof. Bleininger, or Purdy, or Lovejoy to answer it, and they usually answer it in about the same way.

A Cure for Whitewash Brick.

Prof. Purdy: You are putting a proposition up to me that I cannot answer in the five-minute limit. I would rather answer this question and all questions directly, if they were put specifically. This question is too large to be discussed in an intelligent way on the floor of the convention. You have the salts present in the clay and you want to flux them so that they will not come to the surface, and the question is, what is the best way to do that? One of the best ways is to put something into the brick so that it will keep that salt into the brick and not come to the surface. If you will use barium of carbonate, most of the scums are due to the saline substance in the clay. Beyond that statement I hardly care to go into the question of efflorescence. (Applause.)

H. B. Loveland, Jewettville, N. Y.: Often this scum will not come out until the brick are laid in the wall. Is that the same scum?

R. C. Purdy: There is a scum on the brick in the wall that is due to the cement and mortar and not to the brick themselves. The brick are porous, and if there is any soluble salt at all in the lime cement it is going to come out in the wall, just as does the scum that is due to the manufacture.

W. H. H. Rogers: I had one experience with this scum question. There were two contractors once, and one of them had the better of the other in the scum question. The latter asked the former how he got rid of the scum, and the former said, "I spit in the mortar." (Laughter.) As a matter of fact,

he was getting his lime some three or four miles distant from the place where he was doing the work, and the other fellow who was having the scum trouble was getting lime of a poorer grade, which was going into the mortar.

Vice-President Crook: Are there any more remarks on this subject? What Mr. Purdy has said as to the trouble being largely due to the cement in the mortar is undoubtedly true.

Dr. Holmes is now here, and I believe is ready to give us his address. He is the man in charge of the technological division of the Geological Survey, having charge of the investigations relative to the clay and cement industries. He has been doing a great deal of good work along this line and has much of interest to say to us. (Applause.)

SOME PROBLEMS OF THE CLAY INDUSTRY AND WHAT THE NATIONAL GOVERNMENT IS DOING AND CAN DO FOR THEIR SOLUTION.

By DR. J. A. HOLMES, Washington, D. C.

Mr. President and Gentlemen of the Convention:

I have been asked to say a word in regard to the general work done by the U. S. Geological Survey, and especially that part relating to the clay industries, but I want to say just a word first on the other investigations that are being conducted. If any of you gentlemen have not visited the station here in Pittsburg, we will be glad to have you visit it this afternoon or at any time suited to your convenience.

There are three lines of investigation being conducted at this time. The first is the fuel investigation. You may know and you may not know that the Government expends more than \$10,000,000 a year on fuel, and all the fuel used by the various branches of the Government, not only for the public buildings, but for the army and navy, and all their branches, are being investigated under the general supervision of the laboratories here. We are trying to find out how to use to best advantage the different grades of fuel. Here in Pittsburg, for example, this grade of Pittsburg coal has a total thickness of nine feet, and only about six feet of it is mined. We are trying to find out how to use the remaining three feet which is not mined, and often it is not known it is there. We are trying to show that producer gas can be used in various branches of the brick industry as well as in other industries.

The second general line is one of more than ordinary human interest—the causes and prevention of the great mine explosions. During recent months we have experienced a series of such disasters, and as I said to your secretary a moment ago when he asked me if I would speak now or this afternoon, I do not know what hour I may be called away by another explosion. Unfortunately, during the last twenty years these disasters have increased not only in number, but in the number of men killed. We have been trying to find the cause of these explosions. We all know what gas will do when gas and air are mixed together. Say there is a per cent of 4 to 20 of gas mixed with the air, we will have a solution, and we have been trying to find out the condition by which the explosion can be prevented. We have taken up the question of explosives. We think in many cases it is the dust in the mine rather than the gas which causes these awful disasters. We feel that some of the terrible mine explosions have been caused by the explosion of the dust. During the past week we had the explosion in the Ernest mine in this State, which was purely a gas explosion, because all the dust in the mine was so wet it could not possibly become involved. These are some of the phases of the problems we are trying to get at. In one explosion which took place in a mine no larger than this room, eleven men were killed and a number of men walked out uninjured. Out of the eleven men killed, only two of them showed the slightest degree of burning; they were suffocated by poisonous gases. To obviate the dangers of the poisonous gases, we are trying to develop a little apparatus which will be so reasonable in price that every miner can afford to have one. I have one of the little instruments here, which I will be glad to have you examine. When the explosion takes place the men must get out some way or be suffocated, but with this simple apparatus it will be easy for the miner to place it over his mouth and nose and walk out of the mine.

The part of the investigation, of course, that is of most interest to the members of this association naturally, because of your interest in the clay industries, is, what we are trying to do to help in the investigation of structural materials. There is a limitation put upon us which makes plain some of the things you have not understood. The ruling says "for the investigation of structural materials belonging to the United States Government." Working under that ruling, we have been limited to the questions we were requested to investigate by the representatives of the Government. You know very well that three or four years ago, the thing that was new in structural materials was concrete, and nearly every request we had for information coming from the various Government bureaus was in regard to concrete. You may be interested to know that today that is not the case. Three or four years ago they said, "We know all about brick; what we want to know is how to build with concrete." Today requests are being made about the same old brick and fire-proofing materials, not only from the

Government itself, but from outsiders, as to the best way of using clay products. Not brick alone, but all sorts of fire-proofing materials which belong to the clay industry, so we have been turning our attention the past year to clay products, whereas three or four years ago we were investigating concrete and method of using it. Your secretary tells me that it was understood a year or so ago, that we were devoting a large portion of the money at our disposal to the investigation of the concrete question, and so I am glad to be able to tell you why it was and to tell you at the present time the large proportion of the money is being spent for clay products.

I am glad it is the spirit of this organization to encourage investigations in every possible way. The work of the association is largely educational work, and it is gratifying to know that there is a great and growing interest in the clay industries. There is nothing that will take the place of brick in the way of structural materials. (Loud applause.)

Vice-President Bloomfield in the Chair: On behalf of the association I want to thank Dr. Holmes for his very able paper. It is of great value to us and has instructed us on some points that we have not known much about heretofore. I want to state that it has been my pleasure to know Prof. Bleining, who has charge of the work being conducted at the Pittsburg laboratory, ever since his entrance into the scientific work and investigations of structural materials, and I do not think the United States Government could have obtained a more valuable man for their purpose than our friend Bleining. I think he is head and shoulders above any other man



Edwin Brockway, Brockway, N. Y.

in the scientific working of clays, and as such he is invaluable to our Government in this work.

Mr. Blair: Touching two things in the Doctor's paper, first, his suggestion that he hoped to see the day when buildings will be built in this country, from the foundation up, of burned clay, is important. One of the best buildings in the city of Chicago, one in which is located more engineering firms than any other office building in Chicago, is built from the foundation up of brick, and this is the Monadnock Building. There is not a particle of steel or any other material in the foundation and walls of the building. It is solid brick from the foundation up to the top. The other matter I wish to put to Dr. Holmes in the way of a question, and that is, I would just like to know whether your department is making any experiments toward purifying of the air in the coal mines along this line. I merely mention it because in the management of some mines which have come under my care, I have done a little experimenting in the matter, but never had the facilities of going to the expense that I felt necessary to reach a better conclusion. It is a method of discharging the fresh air naturally in the bottom or at points somewhat distant, or measurably so, from the extremity of the mine. I have always felt that it was best to discard the fresh air at the extreme or far portion of every mine of this country, and it is possible to charge that air entering the mine with a certain

amount of moisture, that will eliminate the dust proposition in the mine and provide the air at the extremity, where the foul air always accumulates first, and I have always fancied that that method of experimenting ought to be pursued, and that it would prove valuable.

I. C. Jones: I would like to ask Dr. Holmes if the Government is using sand-lime brick in the construction of its buildings, and if they have made any experiments along that line.

Dr. Holmes: Answering the last question first, so far as I know no sand-lime brick are being used by the Government, but the supervising architect has requested an investigation, and that investigation has been begun.

Now, in response to Mr. Blair: This is a matter of very great interest and importance, and we have begun an investigation and are reaching the conclusion which Mr. Blair has suggested, that it was of vital importance to have the air coming into the mine, not simply at one place, but at different places, and not to stay in the mine too long before it goes out of the mine, because we cannot prevent the gas escaping from the coal into the air in the mine. That gas is there in all sorts of irregular ways, and a lot of it is absorbed in the coal itself, and is given off in the coal as the fresh pieces are broken down. The air naturally becomes foul, and the thing to do is to get it out of the mine before it goes to too many different parts of the mine. We are also trying to develop a method of testing more deeply the percentage of these gases in the air, so that these conditions can be watched. The last



T. C. Lundy, Knoxville, Tenn.

point Mr. Blair mentions in regard to the question of moisture is also of vital importance, because we do not realize on first thought that in the cold season the air is at a much lower temperature outside of the mine than inside, and the warmer it is in the mine the more rapidly will it dry out the mine and increase the dangers from dust explosion. The only possible way to remedy the situation is not to cut down that air, but to turn moisture into the mine, and we have about reached the conclusion that one of the easiest and cheapest ways is to turn all the exhaust steam of the boiler into the mine. If the mine is allowed to dry out, the roof is apt to crumble, but if you turn your steam into the mine and keep it there all the day, all the winter season, you accomplish the double purpose of keeping the dust down and protecting your roof.

Mr. Blair: It affords me a great deal of pleasure to know that you are pursuing the line of investigation that for twenty years I have felt should be investigated, and that it was the ultimate solution of the problem.

Hubert Somers: I would like to inquire how the members of this association can get these reports published by the Government, of which Dr. Holmes has spoken?

Vice-President Bloomfield: You can have your Congressman send them to you.

Dr. Holmes: A more simple way is to request the secretary of your association to send a list of the members to me, and I will see that the reports are sent out. (Applause.)

Vice-President Bloomfield: If there are no further discus-

sions, the Chair will entertain a motion to adjourn, but I would request that we meet here promptly at 2:30.

On motion of Mr. Loveland the convention adjourned.

FIFTH SESSION.

Friday Afternoon, Feb. 11, 1910.

President Blair: The convention will come to order. The first paper of the afternoon session is entitled, "Are Brick Plants Discriminated Against by Fire Insurance Companies? If So, What Is the Remedy?" by Mr. T. C. Lundy, Knoxville, Tenn. Mr. Lundy is an old member of the N. B. M. A. and I take pleasure in introducing him.

ARE BRICK PLANTS DISCRIMINATED AGAINST BY FIRE INSURANCE COMPANIES?

BY T. C. LUNDY, KNOXVILLE, TENN.

Mr. President and Gentlemen of the Convention:

A short time ago I wrote our secretary that I was desirous of having our Association take up the question of fire insurance. I felt from the rate we had to pay there must be some mistake somewhere. He replied by asking me to prepare a paper and present it to the Association in such a manner that it would interest the members. To me that was a problem; to properly present it to you that you might become interested; however, if you had to make out a check to protect yourself by insurance so high that in a few years you would have paid out enough to reconstruct your plant, I imagine just then you would become interested. I think, in some way, the insurance companies have misinformed themselves, or, having met with some losses, they felt the other brick makers should repay without making any distinction between the securities offered, for instance as an illustration: We have been paying a $4\frac{1}{4}$ per cent rate. None of our kilns were closer to the building than thirty feet; our boiler room had a brick wall $4\frac{1}{2}$ feet high all around it. We set direct to the kilns; therefore use no dryer; have tank of water and two lines of hose for protection. For years I have plead in vain for lower rates. Our insurance agent would say, "I know you are unreasonably rated, but what are we to do?" Finally we succeeded in getting two of the inspectors to come up. After a careful consideration and investigation they decided to reduce our rate to a 2.65 rate. I know from other risks near us this is too high, but if they had made it lower we could not have placed it. As it was, the companies who had carried it for years refused to carry it at the lower rate, saying they would not carry brick plants at less than 4 and they often get a 5 cent rate. Next to us is an anchor block, or shuttle plant, all frame. They have a large quantity of refuse piled up all about them, and in case of fire none of it could reasonably be expected to be saved. Their rate is 4 cents. Below us there is a veneering plant, all frame, and in case of fire would most likely be a total loss. Its rate is 3.90. Above us is a tannic acid company, who have had two large fires and is now partly built of brick. They pay 1.90. I could go on and show the difference in risks, but this will, I think, suffice. We assemble here year after year to devise ways and means to better our business interests. I think a bureau could be formed by giving our secretary assistance enough to compile statistics and present to the underwriters, thereby interesting them in the different classes of brick plants as compared with other risks and not class them all the same, or brick plants extra hazardous. We all know how different is the risks between brick plants where different classes of dryers and boiler rooms are constructed, and, for instance, wood working plants, where sawdust and shavings are used for fuel. I believe this would be money well spent. The time is coming when we must take up numerous departments and form bureaus for compilation and investigation, and I feel the sooner we commence the better. I do not wish to state here or charge that the insurance companies have discriminated intentionally against us as a body or class, but from my own experience it certainly looks like it. (Applause.)

President Blair: Is there any discussion on the paper?

Insurance for Brick Plants.

Mr. Crook: I desire to say that I appreciate the paper, for I feel very strongly on the subject. We have two factories which are almost fireproof. There is nothing about them that could be burned unless it is the roof, and as they are built of the truss form of construction, it would be almost impossible to fire them. We carry fire lines all over the plant that is possible in modern factory construction to make our plants a good risk. Yet when we wish to place insurance we are asked to pay a rate that, as Mr. Lundy states, is unreasonable. I believe it is a matter that we should take up as a body and see that the fire insurance companies should give us a rating that is proper. The time has passed when a brick plant is an extra hazardous risk. You visit plants all over the country and I think you will agree that they should have a proper rate and not be classed as "Brick

Plants, Extra Hazardous." One plant we refused to insure at all, we insure ourselves, and we are getting the second plant in shape to do the same thing, if something is not done to secure the proper rating. I wish some action could be taken so this matter could be taken up and the placing of risks according to the real hazard advocated.

Mr. Smith: I would like to know what some of these people are paying. Out our way we are paying \$2.40 or \$24.00 for one thousand dollars every year.

John T. Hummert: In Illinois our company is paying \$31.50 a thousand.

Geo. E. Howard, Butler, Pa.: We pay \$22.50 per thousand, and we are getting a lower rate than another plant more fireproof. When it came to putting a four-inch high pressure hose line (we have frame buildings), I asked for a low rate and they would not reduce any more for that protection than if we put in barrels filled with water. Across the street there is a frame building right next to the railroad that gets a rate of \$20.00 a thousand and it is more dangerous than ours.

President Blair: This is an important question and it seems to me that it would be interesting to know what rates the members are paying.

Paul Elliott, Seville, Ohio: In Ohio we had occasion within the last month to place some little insurance and out of fifteen applications all but three were turned down. I had the three placed at 2 per cent., but one thousand dollars was all any company would take. We have a frame building.

M. E. DeFrance, Pittsburg: In western Pennsylvania we are paying \$4.50 with buildings part frame and part brick. There are some rates of \$3.50, but they are the exception rather than the rule.

Geo. J. Walters, Chatsworth, Ill.: They wanted \$4.95 to insure my plant, so I take the risk of it myself and do not insure.

Mr. E. P. Elzey: We have had our rate reduced from \$4.25 to \$3.75, with the qualification that we put in a night watchman.

Mr. Bloomfield: We are paying 3 per cent. now—we did pay 5 per cent.—and we are promised a reduction of 75 cents. We get the reduction because we got rid of an old ramshackled frame building and rebuilt of brick.

Hubert Somers: We have a frame building using steam tunnel dryers. When we first built our rate was \$2.50, after that it went up to \$3.90, and we took it up with the insurance company and they told us to separate our boiler house from the machine room, so we spent \$200 doing that and they reduced our rate to \$2.37½. I think it would help to get the insurance companies to make a rating for a good risk from their standpoint and then have another rate for extra hazardous risks, and when the hazards are removed the rates can drop down.

C. P. Mayer, Bridgeville, Pa.: I have been exceedingly good at this convention, I have hardly said a word, but this is a subject on which I can not listen without giving you my experience and opinion. We do not carry any insurance and I feel like almost calling a man a fool who owns a brick yard who does. That may be putting it in pretty strong language, but it is true. I want to tell you our experience in the lumber business, in which I am also engaged. We organized mutual insurance companies. Now the lumber yard is the most combustible and dangerous risk found in the insurance business, barring oil or chemical factories. After we organized these lumber mutual insurance companies the works or mills or yards were all rated and paid into a mutual company the same as they were required to pay the old line companies, and the other day I received a check from one of these companies, in which they paid me a rebate of 45 per cent. of the insurance I paid in. Another company paid 34 per cent. You can readily see what that means to the man who has to pay insurance up to 80 per cent. of the value of the material on the yard. There is no reason why the brickmakers can not form a mutual insurance company among themselves. The grocery men are doing it, the dry goods men are doing it, in order to get away from the insurance sharks. When I said I believed the brick man who carries insurance is a fool, I meant it, but I want to say by way of explanation that he makes a material that is fireproof and why don't he use it? I saw some statistics recently—I happened to be connected

with one of the fire insurance companies and so had access to their books and reports—and I saw by that report that they compile statistics and know exactly what the fire loss is in any branch of any industry and the kind of buildings covered by the insurance. They know what it is on brick works, stores, dwellings, and everything is carried out in detail and there is no doubt about their knowing what is an unsafe risk. Among them I saw that the brick works was one of the most hazardous risks, and so I say the brickmaker is a fool because he does not use his own material. We had our plant rebuilt and then they gave us a rate of 3 per cent., and there is not a blame thing about it that can burn except the roof, and when we asked why they made us a 3 per cent. rate they said that was the rate the company made. We put in a water line and put in a 250-barrel capacity tank and we are carrying no insurance. If she burns today we will put on a new roof tomorrow and it won't be a lumber roof either. I would advocate that the brickmakers proceed at once to organize an insurance company for their own safety and economy. They are intelligent enough to do that if they only think so. They can do it as well as the lumber man and the grocery man, and there is no reason why they should not do it.

Mr. Bloomfield: When I became interested in our concern the plant was a ramshackle, wooden building and I tore it down, made the walls of brick and six-inch block. Wherever there is any pressure they run from 16 to 20 inches. Wherever there is machinery or anything valuable it is pro-



C. P. Mayer, Bridgeville, Pa.

tected with corrugated iron; I am putting in a fire pump and a water line, and there is not an insurance company on the face of the earth that will get a dollar from me. (Applause.)

H. B. Loveland: There is one trick in insurance that a great many men do not know. It is not necessary to insure your entire plant. You can insure just your line shaft and machinery if you wish to. We take out insurance where there is any risk. We specify our pug mill, or our building and shafting. We do not insure our boilers or brick engine room. We cut out all this extra expense. I can not tell the rate, but we are carrying about one-fourth of the insurance and that is where it needs to be. The idea is, if you take fire insurance you take 80 per cent. of the value of your plant, but you don't have to take the per cent. of the whole plant. You can take 80 per cent. of certain machinery and you can leave out the boiler room and the brick chimney and all that sort of thing. If you have a fireproof structure you need not insure that. You do not need to insure your dryer if it is entirely fireproof. By taking out these things you can cut down about three-fourths of your insurance. A great many men do not know that, but a good insurance lawyer will put you wise to that fact.

Mr. Mayer: The Pittsburg underwriters will not write your insurance that way. It is 80 per cent. of the whole value. That is the kind of insurance we have to have in Pittsburg. I see in the papers an agitation against the trusts and combinations, and I want to say that the insurance com-

panies have the most abominable trust in the United States and it ought to be wiped out of existence.

Mr. Bloomfield: In New Jersey we can do as Mr. Loveland says, and we do. We do not insure the foundations or anything of that kind.

President Blair: If there is no further discussion on this insurance question we will take up the next regular paper on the program, "Brickmaking in Holland—Past and Present," by Fritz Koch, of St. Paul, Minn. It gives me great pleasure to introduce to you Mr. Fritz Koch.

BRICK MAKING IN HOLLAND—PAST AND PRESENT.

BY FRITZ KOCH, ST. PAUL, MINN.

Mr. President and Gentlemen of the Convention:

Holland has no natural building material. It has no stone, it has no forests. Therefore, the people took to brick making long ago. They had no coal or wood for fuel, so they used peat from their many swamps. Brick were made by hand on a movable mold table in a sanded mold without bottom, three small boys being employed to dump the freshly made brick on the drying grounds. Green boys would generally dump them on the way over.

Tough dirt roads, combined with a damp and rainy climate, started the people to paving not only their city streets and sidewalks, but also their country roads with brick several hundred years ago. You would naturally ask, "How could they make paving brick from river clay without heavy machinery and down-draft kilns?" These brick were set in up-draft kilns with heavy permanent walls, ten courses of brick to one eye and forty-two to fifty high. A kiln was about fifty feet wide. This gave them about 100,000 brick to the eye and about 1,000,000 or more to the kiln.

The brick were set absolutely tight, giving a very slow draft.



D. Warren de Rosay, Corry, Pa.

The top of the open kilns were platted with two or three courses of soft burned brick. Of course, the fires had to be started slowly and increased gradually, a burn taking from four to five weeks. The heat was brought up to such a point that in a large part of the kiln the brick would get soft and would have lost their shape entirely if they had been set in the American way. But, being set so tight, they would only get more dense. In fact, they were pressed a second time under the weight of the top brick. Upon opening a kiln you would find a large part of it looking like one solid lump, but the sand makes each individual brick separate easily from its neighbors.

Out of a well burned kiln a Holland brick maker would get about 30 per cent. to 40 per cent. pavers, 20 per cent. to 30 per cent. klinkers, about 20 per cent. sand-mold veneers and the balance hard and soft burned building brick. Brick are selected both by eye and ear in about thirty kinds. Those that have the real high and clear ring are called klinkers from the Dutch word "klinken," which means ringing. They are used for paving and for the building of locks and waterworks. It is astonishing how quickly and surely a selector will detect a false ring among a number of brick he is taking out of a kiln. To his well-trained ear and eye many of the old churches and "burger" residences owe their beauty and their very life today. You will see many an old church built of costly imported stone crumbling away today, while its brick neighbor is almost as sound as when it was built some five hundred years since.

Today most of the brick are made in sand-mold brick machines driven by horse or steam power. A few Hoffman kilns can be found and are doing good work. I saw one tunnel kiln where the brick were burned on cars. The brick and the financial results both were poor.

With the exception of the sand-mold machines very little change has been made in Holland brick making. You will find occasionally a few stiff mud machines or a German clay shovel built on the chain-and-bucket principle. Nowadays they also use coal in ad-

dition to peat in their up-draft kilns. But taking everything into account, most of the brick are made and burned in the same way as they were made and burned five hundred years ago, while if you cross the frontier into Germany you will find everything different from what it used to be. Germany used to be far behind in the art of brick making, but Germany has changed wonderfully. Holland was far in advance; now Holland is conservative and changes come slowly.

When last I was in Holland I saw some new and expensive residences of hand-molded brick. They had been made to order and were wanted on account of their greater roughness. Thirty years ago machine-made sand-mold brick were preferred in Holland. In Germany the stiff mud verblendstein (facing brick) was gaining favor rapidly.

In this country, too, we went from rough to smooth and now again from smooth to rough, until the next turn about. It certainly has one good side—it keeps us brick makers awake. (Loud applause).

President Blair: Are there any remarks on Mr. Koch's interesting address? It has been a treat to me and I am sure all present have enjoyed it.

Mr. Koch: Just one word I want to say. If every man was treated in a foreign country, if every foreign brick-maker was treated in any country, in the same spirit of friendship as I have been treated in this country he would be fortunate. It is that spirit of friendship that makes the spirit flow. (Applause.)

President Blair: That brings us to the paper by Mr. Bleininger on "Some Critical Observations of the Brick Industry." I think all of you know Prof. Bleininger and know that he is in charge of the clay products division of the technologic branch of the Geological Survey located here in Pittsburg. Some of you may not know, because Prof. Bleininger is pulled from one place to another. It is a well known policy of the Illinois State University that the government can not keep the brightest and best men as experts connected with the various departments, for whenever they see a particularly bright man in the employ of the government it don't take them long to get on to it and steal him away at a better salary. So, while Prof. Bleininger is connected with the government at present, the Illinois University has stolen him for next year. (Applause.)

CRITICAL OBSERVATIONS ON THE BRICK INDUSTRY.

BY A. V. BLEININGER, PITTSBURG, PA.

Mr. President and Gentlemen of the Convention:

The writer has had some opportunities of observing the conditions prevailing in the brickmaking industries and of comparing them with those obtaining in other lines. He feels, therefore, that he has some grounds for making certain statements and if in part they appear to be somewhat severe, he wishes to make it clear that the criticism is not captious, but is inspired by the deepest interest in our common pursuit, the study of the best uses of clay. The writer has grown up in this Association of ours; he has been a member of it for quite a number of years; he feels a strong affection for it; and he is deeply indebted for much encouragement to many of its members since his first convention, which was that held at Cleveland in 1895. It need hardly be repeated then that all he has to say springs from genuine interest and concern for the welfare of the brick industry.

The remarks to be made may be grouped under two headings:

1. The general status of the industry.
2. Plant conditions.

First of all, we must realize the full importance of the truth that brick products are the most durable building material known to man, a fact which has been proven beyond the shadow of a doubt. What then is the condition of this ancient and honorable craft today? How is it faring in the struggle with the competitors which modern conditions have called into existence? Since the other building materials certainly can not base their claims upon greater durability, greater fire resisting properties, or greater beauty, what then is the cause of the fierce competition which we observe in many localities?

Considering concrete as the great factor of this disturbance, a brief analysis will at once show us that the low cost of labor in the erection of large massive structures is the chief advantage of this material. Without doubt, it is not so much a matter of greater intrinsic cheapness on the part of cement over brick as it is the greater cheapness in construction. We must acknowledge freely that this is the case and the day has passed when bricks will play an important role in the construction of dams and similar structures. We might as well face this fact cheerfully and not make the attempt to compete with concrete by cutting prices on bricks, which is about the most foolish thing that can be done, but which unfortunately we find quite a common thing. When we see that by virtue of competition with concrete the price of hard burnt bricks is cut to something like \$4.00 per thousand at the yard, as is the case in certain districts, something is decidedly wrong. It would be by far the better plan to shut down a yard rather than sell at such prices at which a profit is impossible, for demand is never stimulated by lowering the selling price so absurdly.

If we thus concede to concrete its greater cheapness and suit-

ability for certain construction work there is, however, a large field in which the advance of concrete must be vigorously contested, namely in the construction of buildings of any kind. By contesting, I mean not a futile campaign directed against concrete in which all sorts of more or less inapplicable assertions are made and which usually come back as a boomerang, but one bringing forward the good properties of brick products.

This educational campaign to be successful must be carried on by concerted action and by individual effort. It is high time that all brick manufacturers realized the importance of the first. As to the campaign itself, this subject has been so ably treated by other members of this organization that I need not attempt its discussion. What can be done along this line is strikingly shown by the cement interests in their propaganda, and as an illustration I need cite only the fact that about \$150,000 is to be expended in the annual cement show which is to be held in Chicago this month. It might be well for many of us to see this exhibition so as to gain a proper idea of the aggressiveness of the cement advocates.

In regard to individual effort, we must emphasize the study of local conditions, improvement in quality and lowering of cost of production and adaptation.

The first point is an important one and the writer has observed some interesting illustrations of it. In a certain district it was noted that the cost of concrete was quite high owing to the fact that both gravel and sand had to be shipped in some distance and yet not a good brick was obtainable in that neighborhood, the only product being a miserably made soft mud brick. It was evident that in this locality concrete was at a considerable disadvantage and yet the situation was not realized by the brick manufacturers, as good brick would have sold well in this town. It is evident, therefore, that the brick manufacturer should know the cost of aggregate and the finished concrete in his locality, so that he may have a clear idea as to what the chances are for brick. The next consideration is the improvement in the quality of the brick. It is humiliating to observe occasionally the poor quality of brick produced in some localities and it is there usually where the use of concrete is becoming more prominent. The cement interests, naturally, do not miss any opportunity of pointing out the defects of their competitor. Every low grade brick, poorly made and poorly burnt, is hurting the clay interests. The plea that at the prevailing low prices it is impossible to manufacture good bricks will not hold and it is simply the old case of the survival of the fittest. This will mean either improvement and better operation of the clamp kiln or its replacement by better types. If the undisputed excellence of brick as a building material is to be used as the principal argument, we must not vitiate it by offering inferior products when better grades may be made with about the same cost. Here again the question of educating the public comes into prominence, for if we show what good brick really means, it is bound to find appreciation. If we aim, for instance, to sell no brick which show a water absorption of more than 15 per cent by weight, and let the people know about it, a standard of strength would be set with which concrete would find it difficult to compete.

The need of reasonable brick specifications is now being realized since at present there is no unity whatever on this subject. Bricks being used in one city are considered inferior in another and, though anybody with common sense can tell a good brick from a poor one, yet definite requirements for the use of engineers and contractors, which afford a basis for legal interpretation, are still lacking. The government, the American Society for Testing Materials and the National Underwriters have recently drawn up specifications covering this point. There is no doubt but that the application of such specifications is bound to be of great benefit to progressive brick manufacturers, to the industry as a whole, and to builders.

In regard to the lowering of the cost of production, we all realize that this topic is one which is everlastingly before us and that it is the theme for discussion at all conventions. It is a subject too broad to cover in a paper of this kind. The tendency to increase the capacities of our plants for every man employed by using larger machines, dryers and kilns is apparent to us all. Likewise the tendency to cut down the cost of labor and fuel in general by means of labor-saving devices is evident by the new schemes which are constantly being proposed. The time is coming rapidly when the continuous kiln, either of the older or the tunnel and car type, will be adopted in all large brick centers, owing not only to considerations of economy, but also to conditions imposed by the growth of cities, the agitation against factory smoke, etc.

As to the question of adaptation, a wide topic is opened up. We must not be content with offering to architects and builders the one kind of brick to which we have become accustomed, but we must extend our scope as far as possible as regards texture and color. Fortunately, this is fairly well realized by our brick manufacturers, as is illustrated by the production of the Harvard, Devonshire, Tapestry and other artistic brick products which are now on the market. This list, however, may be extended in various other directions along more humble lines, such as the production of hollow bricks and blocks of various shapes and dimensions for partition walls, sewers, chimneys and many other purposes, the manufacture of porous heat insulating bricks and tiles, etc. Along the artistic side there is no reason whatever why we should not offer to the building public a variety of products which will remove the objection of monotony which has been raised against brick construction. Many simple mechanical processes, as well as the use of slips applied by spraying or other means, are available for attaining this result. The importance of this kind of work can hardly be realized and we should keep in mind the fact that by neglecting this feature of our work the brick industry of some countries has suffered a severe set-back. The German face brick industry may serve as an illustration which today is in a most deplorable state owing to the attitude taken by the architects. Today this once flourishing industry is in a sad state simply be-

cause the manufacturers have clung to the smooth, uniform bricks without making any special effort to offer the variety demanded by modern architecture. The result is that stucco plaster reigns supreme in that country in spite of its inherent inferiority.

American brick manufacturers are to be congratulated that they are realizing this fact and are taking steps to adapt themselves to modern conditions. Taking up briefly the question of plant conditions, I shall not bore you with a detailed discussion of some of the weaknesses of brick plant construction, but I wish to point out briefly two fundamental defects of kilns which we meet in many brick yards. The first one is the constant loss of heat and hence of coal which we suffer day in and day out by the poorly insulated kiln bottoms, and the second the tremendous losses which we experience constantly due to the lack of attention paid to the building of our kiln walls. If the writer has succeeded in simply drawing your attention to these facts he has accomplished all he set out to do.

In visiting brick yards throughout the country we can not fail but observe that the seepage of water into the flues and kiln bottoms of the kilns is a usual condition and frequently this takes place to such an extent that the fuel consumption is raised beyond all reason. No doubt we all realize this point, but how few of us really take steps to prevent it. No better investment could be made than to spend money to prevent this flow of water into the kiln bottom by the construction of a dense basin upon which the foundation is built and by draining around the kiln. The evaporation of water requires much heat and it is evident that if we avoid the expenditure of the heat needed to vaporize the tons and tons of water which are constantly drawn towards the kiln bottom by capillarity we effect a saving which, if expressed in dollars per year, would astonish you.

The second point which I wish to make may be illustrated at any time by observing the quivering waves of heated air which surround the walls and crowns of the hot kilns. We must remember that heat flows very similarly to water from a higher to a lower level. The heat in the kiln being at a high temperature as



A. V. Bleininger, Pittsburg, Pa.

compared with that of the outside air flows toward the outside at a rapid rate. This means that every second for every square foot of surface a certain amount of heat escapes which never ceases for one instant. The higher the temperature on the inside the more rapidly will this loss take place, likewise the thinner the kiln wall the greater will be this loss per second. From this it follows that we can diminish this flow of heat only by making the walls and crowns thicker than we have been doing. But in this respect another factor comes in, namely, that of the different heat conductivity of different bricks. The denser the brick the more heat it will conduct away for a certain difference in temperature between the inside and the outside of the wall per square foot and per second and vice versa. Hence we can diminish this loss by keeping the same thickness of the wall, but by using outside of the fire brick lining a material as porous as we can possibly get it. If now, however, we increase both the thickness of the walls and crowns and at the same time use a porous backing up material, it is readily seen that we can stop the heat flow to a very great extent. The writer, therefore, wishes to make a plea for heavier kiln walls and crowns and for the use of a porous material inside of the walls. Now it doesn't matter what that porous material is and it need not have any great strength. Probably as good as anything would be soft burnt bricks made out of a mixture of clay and ground coal or saw dust. Such porous bricks certainly would offer a means of decreasing this enormous heat loss. It might now be suggested that hollow bricks or tiles might be used in the construction of kilns, since air is a good non-conductor. This would be a great mistake. The kiln loses heat not only by conduction, but also by radiation. Now radiation takes place readily through air spaces, especially at higher temperatures; in fact, it is proportional roughly to the fourth power of the temperature difference. This means, therefore, that under the conditions existing in our kilns heat would be radiated through the air spaces at a high rate and hence the heat loss would be even greater than it

would be with the ordinary brick wall. It is evident, therefore, that hollow tiles, etc., would not do at all, but that we must depend on the porous insulating material suggested above. If, however, we could fill the hollow tiles with some porous substance the objection to them would be removed. The importance of this point may be indicated by the statement that of every 100 pounds of coal fired into our down draft kiln furnaces never more than 25 pounds are actually used in burning our ware and the heat of the 75 pounds is either retained by the ware and kiln or taken out by the stack gases or lost by conduction and radiation. Since where the waste heat drying system is employed hardly ever more than 30 per cent of the heat is recovered, it is evident that about fifty pounds coal out of every 100 are hopelessly lost and of this a good share is due to conduction and radiation losses. A 30-foot kiln with a 24-inch wall during high fire will lose through its walls heat in twenty-four hours equal to about 3,500 pounds of average bituminous coal simply by radiation, for which absolutely no return is made. For a thinner wall, say one 18 inches thick, this loss would be still greater. It is readily seen, therefore, that this matter deserves attention and it is important that we should take steps to cut down this inexcusable waste. Another point might be made in this connection, namely, that once we realize this fact we should spread this knowledge by making porous bricks or blocks ourselves and sell them to users of boilers and furnaces of any kind, for it certainly can not be denied that other people who use coal know still less about these conditions than we do. (Loud applause).

General Discussion.

Mr. Bloomfield: I want to ask Mr. Bleininger a question. You object to the use of hollow brick, as I understand it. Suppose you take hollow brick and fill these hollows with sand and put a panel of hard burned brick next to that?



R. C. Penfield, New York, N. Y.

Prof. Bleininger: I do not object to the use of hollow brick ordinarily, but I do object to it for kilns.

Mr. Bloomfield: We have a 30-foot kiln built that way and it does not take as much fuel as our 24-foot kiln. We use the hollow fire brick and fill all the hollow places with sand.

Prof. Bleininger: That is all right. It is the porous material that I was speaking about.

President Blair: If there is no further discussion on this subject, we will take up the next question.

Secretary Randall: I would like to say just a word because it fits in with the remarks of Prof. Bleininger in that connection. He touched a chord of sympathy when he told you that he had written to the brick manufacturers who are directly interested or at least they should be directly interested in the work he is doing, and he did not get replies from much over 5 or 10 per cent. of those addressed. It is shameful the way the brick manufacturers of the country neglect correspondence of this sort. Here is a case in point: It was the desire on the part of a good many of our members to go to New Orleans this winter. I knew if we went so far south we would lose a good many of our northern members who could not go so far south very well. Mr. Blair and I went south together and visited Chattanooga and other cities to investigate the facilities offered for convention purposes. The trip to New Orleans would be a nice trip to make in the winter time. The New Orleans people were nice to us and are very anxious to have us come south. Mr. Salmen is here

now from New Orleans with a very urgent invitation to come south next winter. New Orleans affords splendid hotel facilities and we could have a splendid meeting there. We seriously considered their invitation last year, but, in order to ascertain the attitude of the southern brick manufacturers, I sent out a thousand letters to the brick manufacturers of the south and thought that if I got enough favorable replies to this letter we would take the convention there. I put in a return envelope with a two-cent stamp, and how many replies do you think I got from that first thousand? I spent over twenty dollars in postage alone on those return envelopes and I received less than two hundred replies. Over eight hundred people took my stamped envelope and kept it. These letters went to brick manufacturers, too. They went out under two-cent stamps and they did not come back, so I know they were delivered. It was as good a letter as I know how to write and, with the Assistant Secretary's assistance, I can write a good letter. (Laughter and applause.) That condition ought not to prevail—it shows a lack of interest in the business. Prof. Bleininger had the same experience. He wrote letters on matters in which you should be interested and he got replies from only 10 per cent. I followed my first letter up with a second letter, but I didn't put in a two-cent stamped envelope, and I got a little over one hundred replies to that, and that is why the Executive Committee did not vote to take the convention to New Orleans. I guess, however, we can congratulate ourselves that we did not go south, but decided to meet in Pittsburg. I do not think the average brickmaker pays enough attention to the correspondence which comes to him. We are indebted to Mr. Bleininger for a very instructive paper, one that every brickmaker in the land ought to study very carefully.

E. C. Kimbell, Chicago: I want to say a word of defense of the brickmaker as to his effort or lack of effort. I believe if you put it up to this association to start something going to influence the supervising architects in the construction of government buildings, no matter where they are, requiring brick work to have a practical brick man in charge, if such a report is sent out, you will get more than 50 per cent. of replies. The reason I bring up this question is I know the government specifications, the restrictions that are in these specifications, are such that the ordinary brickmaker can scarcely afford to tie himself up with them. (Applause.)

President Blair: If there are no further remarks on this paper, we will pass on to the next.

Secretary Randall: We had on our program yesterday an illustrated lecture on "Modern Brick Yard Equipment," by Mr. Joseph Cite. For some unknown reason that gentleman has not appeared. I know he had gone to the expense of having lantern slides made and it would have been a very interesting part of our proceedings, but, failing to hear from Mr. Cite, Mr. Penfield has consented to give us something along the same line. It is hardly necessary for me to introduce Mr. Raymond Penfield to the audience, for I am sure he is well known to most of you.

Mr. Penfield was given an attentive hearing while he told of the mechanical brick setter and the improvements made in same since the previous convention, when it was described and illustrated in a similar manner. The full text of his remarks and the illustrations will be published in a subsequent issue of the CLAY-WORKER.

President Blair: We are indebted to Mr. Penfield for his talk and the excellent illustrations. Discussion on same hardly seems necessary, so we will pass on to the next paper, "Some Observations on the Clay Column From the Stiff Mud Machine," by Mr. Paul E. Demmler, Charleston, W. Va.

Secretary Randall: While Mr. Demmler is getting his charts ready, I desire to announce that the gentlemen interested in the publicity promotion proposition, and everybody seems to be interested, will be glad to know that the new association has finished its labors and the committee having the matter in charge, through their chairman, will report to you what they have done and what they want to do. If any of your friends are in the lobby whom you want to hear this report, which will be made immediately after Mr. Demmler's paper has been read, I suggest you notify them now.

I also want to make a statement in regard to the future work of our conventions. I am convinced from our experi-

ence this week that it will be a wise move and one in the interest of the N. B. M. A. and its auxiliary bodies to have but one session a day of the N. B. M. A. at future conventions. I shall make my plans accordingly for next year. We will then have time for committee work and those interested in the auxiliary bodies will be able to transact their business and perform their work without having to stay up half the night to do it. I hope in the future, wherever we go, to make arrangements for a combined convention hall and exhibition room. I am going to make it one of the prime requisites of any convention city we go to that we shall have a hall adequate for both convention and exhibition purposes. Then we can have one business session for the N. B. M. A. and the rest of the day can be given over to the auxiliary organizations or to the exhibitors if they so desire. I am confident that the welfare of the craft generally will be advanced by this co-operation.

President Blair: There seems to be no further discussion on this question, and Mr. Demmler is now ready to present his paper. I am glad to introduce Mr. Demmler to the convention.

SOME OBSERVATIONS ON THE CLAY COLUMN FROM A STIFF MUD MACHINE.

BY PAUL E. DEMMLER, CHARLESTON, W. VA.

Mr. President and Gentlemen of the Convention:

Every brick man knows that some clays and shales will make a good stiff-mud brick, while others will make a brick of poor structure. The trouble in most cases is lamination, and it was in studying this problem of clayworking and trying to find out more about its causes that this line of investigation was begun.

That lamination is objectionable and a bug-bear to the brick-maker in many sections of this country, will be admitted by all. In paving brick it is especially objectionable because the loss in weight in the rattler test is excessive, due to the cracking off of the loose outer hull which is present in laminated brick.

Various suggestions have been made as to the cause of lamination, but none seem to explain all phenomena observed. Various remedies have been suggested, but they do not seem to get at the root of the trouble. Bad cases have been cured, but the same cure will not apply to cases apparently similar. We know of cases where many remedies were tried without success, but where finally the laminations disappeared, while no special efforts were being made to effect a cure, so that the real remedy in that case is unknown. In another instance, at a plant troubled with lamination, the laminations disappeared for a short time and then reappeared. During all this time there apparently was no change either in the clay or in the manner of working.

Clay in the plastic condition, as it is after pugging, has the properties of a fluid of high viscosity, and the clay column from a stiff-mud machine may be considered as flowing. Therefore, consider for a moment the movement of several flowing bodies in nature, such as rivers and glaciers. Both are flowing streams, the force of gravity causing them to move forward. It is known that the flow of water in a stream is swiftest at the center of the surface, the friction between the water and land retarding the flow along the bottom and shores. The differences in the velocity of the surface may easily be observed by watching the motion of floating debris. Observations on glaciers show that these bodies also move in the manner of a fluid, although one that is very stiff and viscous. It has been demonstrated by actual measurements that the rate of flow of a glacier is greater at the center of the surface than at the sides, and greater at the surface than at the bottom. The cause is friction, just as in the case of the river. Like the river and the glacier, the clay column is a flowing stream, driven forward by machinery. Therefore, we may say that the clay column moves in the manner of a very viscous fluid, the friction of the die around the column tending to retard the outer layers of clay, while the center will flow within the outer hull. To what extent this flow will take place depends on many varying conditions. Thus we may briefly state our theory of lamination—the difference in the rate of flow of the several parts of the clay column in the die.

This is easy enough to say and it certainly would be desirable and convenient if we could get a formula by which we could calculate the changes in the conditions necessary to remedy any case of lamination. But there are so many variable factors to be considered that much work will have to be done to determine the influence of each variable before we can hope to reach any general rule. The variable factors include the size of machine, the type of auger, length and taper of die, lubrication of die, rate of flow of clay column, physical properties of the clay, and the amount of water used in pugging. For every clay there will be a certain combination of conditions which will give the best quality of brick.

If our assumption, as stated above, that lamination is due to the difference in the rates of flow of the several parts of the clay column within the die is correct, there should tend to be a variation in the rate of flow of the different parts of the clay column as it flows out through the die. Imagine, if you please, that at the instant of leaving the die the column is divided into an infinite number of smaller columns, each moving freely and without friction on its neighbors. Then, after running a certain length of time, any difference in the velocities of the several small

columns could be noticed, the faster columns forging ahead of the slower. To divide the column into a great number of parts is, however, not practical. But that there really is a difference in the rate of flow in various parts of the column, we have demonstrated by cutting the column, as it issues from the machine, into a number of bars, by means of wires stretched over the mouth of the die.

In making the experiments, a line was drawn across the clay column at the mouth of the die, the machine started and the narrow bars into which the clay column was being cut allowed to move forward freely on a lubricated surface. After allowing a certain length of column to run out, the machine was stopped and the difference in the lengths of the several bars of clay measured.

The clay used was highly plastic and made laminated brick.

The plates will bring out the points observed. All figures are calculated to the difference in length in six (6) feet of clay column, and for comparison the lowest bar of each figure is drawn the same length. The increments in length are drawn to a scale double that to which the width of the column is drawn.

Plates 1, 2, 3 and 4 represent the differences in length of the bars of a clay column from a taper die of standard manufacture, cutting wires spaced so as to cut a one and one-half ($1\frac{1}{2}$) inch bar at each side, and six (6) one (1) inch bars between. Column 1 shows the difference in movement where the die was very poorly lubricated, as indicated by ragged edges, due to excessive friction at the corners. Column 2 shows the difference where the die was lubricated somewhat better. The fastest bars of these two columns moved respectively two and three-eighths ($2\frac{3}{8}$) and one and thirteen-sixteenths ($1\frac{13}{16}$) inches farther in six feet than did the slowest. Column 3 represents the movement where an excess of water was used for lubrication, thus reducing friction to a minimum. The greatest difference in the length of the bars was nine-sixteenths ($\frac{9}{16}$) inch. It will be noticed that in this case the end bars move faster than those



Paul E. Demmler, Charleston, W. Va.

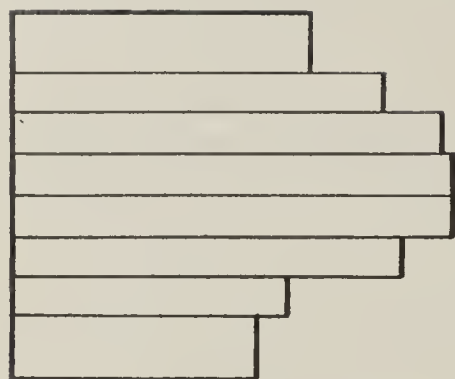
adjoining, but the middle of the column still had the greatest velocity. Columns 1, 2 and 3 were made on a machine having two-leaf auger. Columns 4, 5 and 6 were made with the same die, water lubricated, but on a machine having three-leaf auger. In these latter three columns the maximum forward movements over the standard (lowest) bar are one and seven-eighths ($1\frac{7}{8}$), two (2) and two (2) inches, respectively. Column 4 shows a considerable retardation on one side, due, apparently, to poor lubrication.

The general appearance of these two sets of columns, those made with two and three-leaf augers, is very similar, and there is nothing to indicate a difference, due to the difference in augers. The retardation at the sides is in accord with the theory advanced that the sides are retarded by friction.

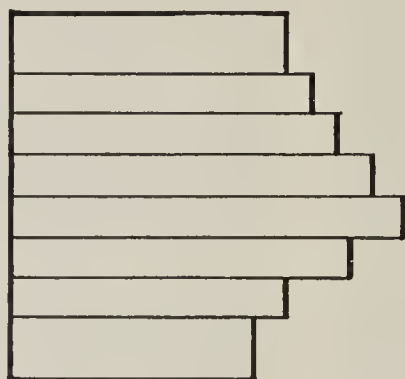
Plates 5, 6 and 7 represent the difference in movement of the bars of a clay column forced through a special die made to our order. The column on leaving the die was cut into thirteen (13) bars by wires spaced one (1) inch apart. Columns 7, 8, 9 and 10 were made, using water for lubricating the die, while Columns 11 and 12 were made without lubrication. You will at once note the difference between these columns and those made with the other die. In all columns made on this special die, the end bars move faster than those adjoining. The middle bars show a nearly constant increase over the slowest bar, the maximum differences being 2, 3, $3\frac{3}{4}$, 3, $3\frac{3}{4}$ -16 and 3 inches, respectively. Where the die was lubricated the end bar showed a greater increase over the shortest bar than where the die was run without lubrication. This die also made laminated brick, as would be expected from the difference in the rate of flow of the several parts of the column, although the slowest bar is not next to the die, as might be expected.

An observation of the temperatures in the different columns and in different parts of the same column brought out some interesting figures. It is to be expected that where the friction is the greatest the temperature should be the highest, and that is what was observed, as you will notice in the graphic representation of temperatures shown on Plate 8. Figure 1 represents the tem-

PLATE 1.

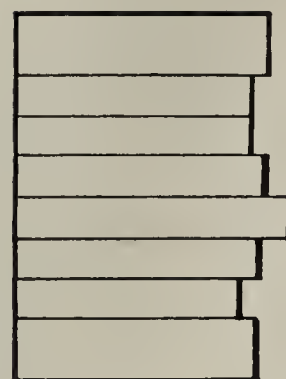


COLUMN 1.



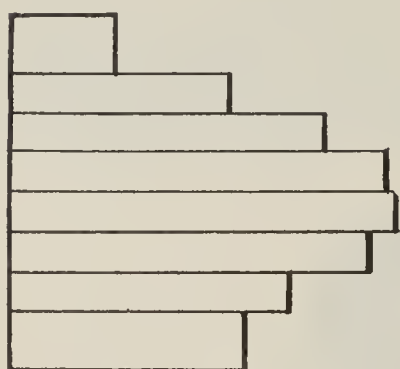
COLUMN 2.

PLATE 2.

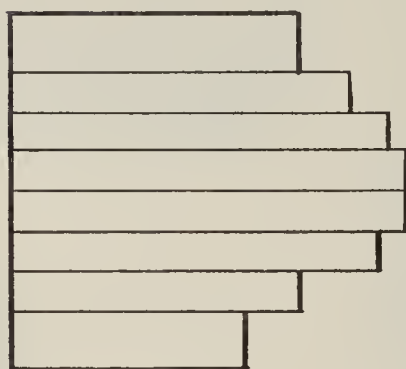


COLUMN 3.

PLATE 3.

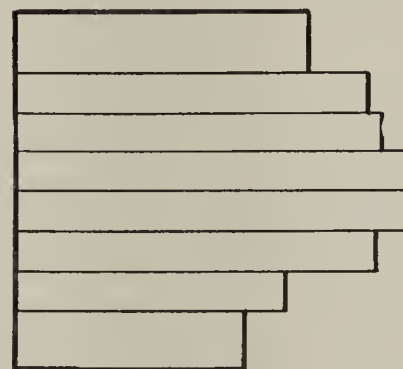


COLUMN 4.



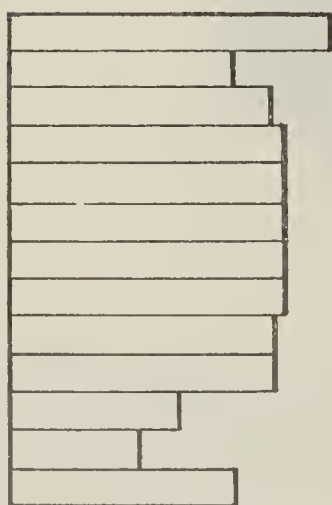
COLUMN 5.

PLATE 4.

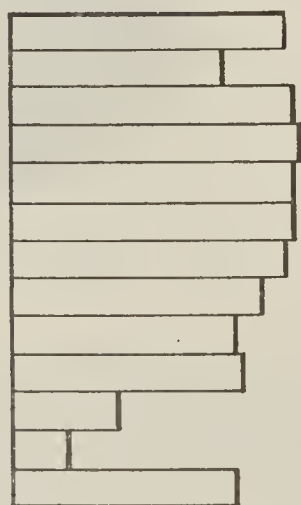


COLUMN 6.

PLATE 5.

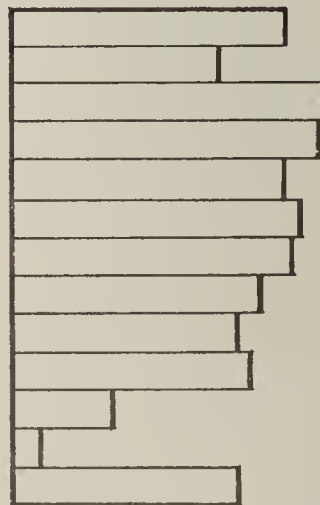


COLUMN 7.

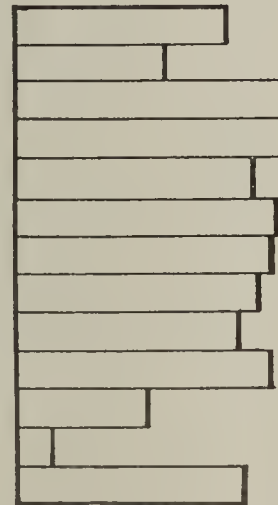


COLUMN 8.

PLATE 6.

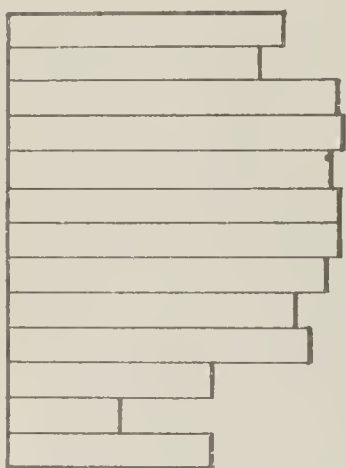


COLUMN 9.

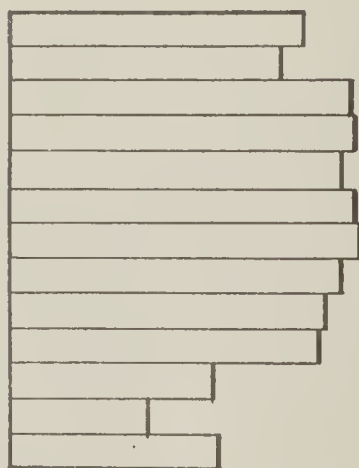


COLUMN 10.

PLATE 7.



COLUMN 11.



COLUMN 12.

PLATE 8.

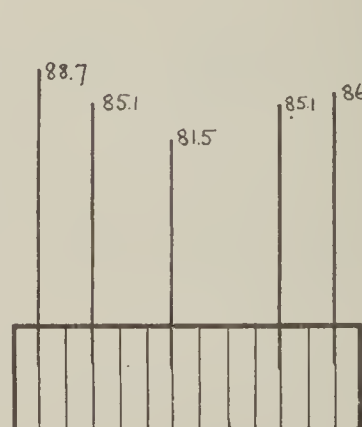


FIG. 1.

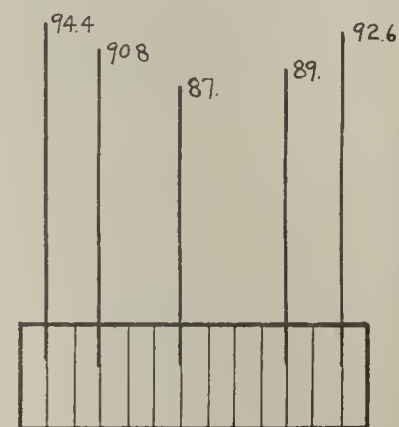


FIG. 2.

peratures observed in Column 10, and Figure 2, those in Column 11. In the former the temperature varied from 88.7 degrees F. at one side to 81.5 degrees F. at the center, a difference of 7.2 degrees. In the latter column the temperatures varied from 94.4 degrees F. at one side to 87 degrees F. at the center, a difference of 7.4 degrees. Column 10 was made with a water lubricated die, hence we have less friction and some cooling, due to the water. From the difference in temperature between the pugged dirt and the clay column after leaving the die, we have calculated the amount of energy which appears in the clay column as heat. This in Column 10 amounted to 30 h. p., and in Column 11 to 51 h. p. The experiments were made on a large size belt-driven machine, power furnished by a large Corliss engine, and an attempt was made to indicate the engine and determine the number of horse power required to run the machine. This, however, was found to be impracticable, owing to the fact that line shaft, dry pans and other machinery were running, and, besides, the short periods during which the brick machine was run to form each of these columns made indicator cards misleading, owing to the inertia of the flywheel.

This paper is nothing more than a preliminary report on some work which we have done. It leaves much to be explained and gives some idea of the wide field for investigation which opens in this direction. The experiments here recorded show only a very few of the possibilities, due to changing the variables. By cutting the column into narrower sections, new facts may be brought out. By turning the die 90 degrees and then cutting the column into vertical sections, we hope to show the difference in rate of motion between the top and bottom of the die. By using a clay which makes a non-laminated brick, we hope to show what difference exists between the movement in the die of clay making non-laminated brick and that making laminated brick.

If, as we believe, lamination is due to conditions in the die, then the type of machine and auger will have little to do with the question. We have not had the opportunity to make tests on a plunger type machine, but hope to be able to do this and compare the columns from an auger machine with those from a plunger type machine, using the same clay and die. (Applause.)

General Discussion.

President Blair: This subject is now open for discussion.

Mr. DeFrance: I would like to ask how many rings there were in the die.

Mr. Demmler: The ordinary die was used, such as is ordinarily furnished, but as to the special die I do not care to say anything particular about that at the present time. There was no change in the machinery, it was the same as is always used, with the exception of the one special die.

Alfred Yates: Was there any space between the end of the clay crown and the end of the die? Did you put in a clay former?

Mr. Demmler: Yes, sir.

President Blair: If there is no further discussion on this question, we will proceed with the program. There are some questions for general discussion, but I think it will be best to pass over them for the present and take up the report of the Committee on Resolutions, of which Prof. Edward Orton is chairman. After we have had this report we will go back to the questions.

Professor Orton presented the report of the Committee on Resolutions as follows:

REPORT OF COMMITTEE ON RESOLUTIONS.

Mr. President and Gentlemen of the Convention:

Your Committee on Resolutions submits herewith its report:

WHEREAS, The Association has enjoyed in this its Twenty-Fourth Annual Convention an attendance rarely if ever equalled, and a program of most broad and varied character, and amid appointments of unsurpassed comfort, convenience and efficiency, and

WHEREAS, We assemble after a year of prosperous business and extensive expansion in the construction of homes, factories and buildings of all kinds, during which we have been graciously spared from the visitations of fire, flood, earthquake, pestilence, famine or other natural calamity, and enjoyed an unexampled prosperity and peace in the fields of diplomacy abroad, and in the relations of labor and capital at home; therefore, be it

Resolved, That we reverently and humbly give thanks to the Divine and Allwise Ruler above, by whose grace we have been permitted to again assemble under these happy conditions and take each other by the hand in friendship and good will.

Resolved, That to the Mayor and officers of this municipality who have bid us so gracious a welcome, and to the prominent and honored citizens of this community who have addressed us in our serious deliberations and on our social occasions, and to the people of Pittsburgh who have viewed our presence in their midst with such ready sympathy and kindly good will, we address our appreciative thanks. No man can sojourn for a week within the borders of the great industrial center without feeling its fascination and its might, and as we look upon its gigantic industries pouring their products out to a worldwide market, its teeming population of self-supporting, vigorous and energetic workers, we can not resist the thought that Pittsburgh is indeed a gigantic crucible in which are

being formed citizenship and manhood as well as material wealth. It is a place that does things.

Resolved, That to the brother craftsmen of Pittsburgh and vicinity who have so bounteously entertained us, whose hospitality and good cheer have been so delightful and whose efforts for our comfort and pleasure have been so untiring, we extend the cordial hand-clasp of a true fraternalism and wishes for their continued health, wealth and prosperity.

Resolved, That to the noted speakers whose words of wit and wisdom alternately convulsed us with mirth and uplifted our thoughts to the serious and high things of life, we return our thanks and the assurance that we have profited at their hands.

Resolved, That to the choir of Tancred Commandery of Knights Templar and the Mozart Club chorus and their respective leaders we render thanks for the sweet and inspiring music which dignified and graced our banquet.

Resolved, That to Lemon Parker, our retiring President, and to William P. Blair, his successor and present President, and to our genial Secretary Randall, and our ever suave and obliging Treasurer Sibley, and to the staff who have labored during this year and at this convention, we return thanks for their industry, thought, self-denial and the contagious enthusiasm of their efforts for the Association's weal. This splendid meeting, with its ever-widening circle of faces and ever-lengthening list of names, is the best evidence of the effectiveness of their work and the breadth and wisdom of their policy.

Resolved, That we record with deep feelings of sorrow the loss of four of our brothers,

John Miller, Washington, D. C.
William Lahey, Newburgh, N. Y.
Milton N. Grant, Columbus, Ohio.
A. R. Harwood, San Antonio, Texas.



Prof. Edward Orton, Jr., Columbus, Ohio.

They have passed out of a circle where they were admired and beloved into that greater circle where we in our turn shall follow. They have left behind as their heritage in this body a memory of their genial presence, their sincere affection for the organization and desire to be of aid to their fellow men. We suffer a genuine bereavement, and we add our sorrow to that of their families and nearer neighbors.

Resolved, That we approve of the work of the Committee on Industrial Education and the co-operation which they have extended to the Department of Bricklaying in the National Trade School of Indianapolis. We see in this work a practical step toward the alleviation of some of the most trying troubles which beset the modern industrial and social condition, and we urge upon the individual members of the organization to continue their support of this work, and we confer upon our officers and committees the power to appropriate for a period of three years, ending in 1913, such a sum for the furtherance of this work as they may deem wise and prudent, and that this committee shall be empowered to make such arrangements with the above school or other schools for the use of such funds as may be allotted to them, as they may deem proper, such funds in all cases to be devoted wholly to the use of the bricklaying department.

Resolved, That we approve of the work now being carried on by the Committee on Technical Investigation and of the studies which they are now pursuing for the alleviation of one of the most common and deep-seated sources of loss to the clayworker.

Resolved, That we acknowledge with satisfaction the important services rendered to the clay industries by the United States government through the clay products division of the technologic branch of the United States Geological Survey at the testing station located at Pittsburgh, through the researches they have pursued on the subjects of testing of clays for paving brick manufacture, the crushing test as applied to building brick, the failure of refractory bricks under loads at high temperature, the effect of preheating on the drying properties of clays, the study of the causes and creation of the plasticity of clays and other subjects of direct and immediate importance to us in overcoming the difficulties of our work.

We feel that this aid which has been extended and thankfully received is nevertheless a tardy and inadequate recognition of our ancient and important industry and that, compared to the other industries which depend directly upon the utilization of mineral wealth, we have received but a tithe of the attention which is our proper due. We recognize the legislation now pending in the Congress of the United States providing for the creation of a permanent bureau of mines under the Department of the Interior, and the transfer to this bureau of the functions now exercised by the technologic branch of the United States Geological Survey, a step of the utmost and most direct importance to us and our work. We believe that by the creation of such a bureau of mines, carrying with it continuity in organization and support, with opportunity to plan researches extending over considerable periods of time, and especially continuity of service in the corps of experts who are to carry out this work, and by this means only can results of high order be obtained. We believe that only by the employment of persons familiar with the occurrence of this kind of a mineral wealth and with its mining and manufacture, can the most intelligent regulations for its use and test be formulated, and we submit that the supplies of such sorts now purchased by the government alone amply justify the organization of such a bureau, entirely aside from the urgent needs of general commerce for better and more intelligent standard modes of control of the quality of such products.

We direct our President and his associated officers and committees to immediately and forcefully again present this statement of our needs and our hopes to the appropriate committee in the Congress of the United States and do all in their power to secure the adoption of this legislation.

Resolved, That we contemplate with satisfaction the fusion of the two organizations which have been formed for the exploitation



J. Parker B. Fiske, Secretary-Treasurer, B. B. A., New York, N. Y.

of building brick by publicity and the use of proper scientific advertising into one larger, stronger and more effective organization, and the affiliation of this new organization with our own parent organization by whose existence alone has the other become possible. We believe that the strength of the N. B. M. A. lies hereafter in pursuing the course which it has historically followed in the past, avoiding entrance into discussion or action on the purely financial side of our business, and confining our activity to its social, industrial and technical aspects. But to the newer organizations, which have sprung from our side, and which work side by side with us in different and parallel fields, we pledge our cordial support in all such matters as properly come before us.

EDWARD ORTON, Columbus, Ohio, *Chairman*,

J. T. GUNNESS, Anaconda, Mont.,

W. E. DUNWODY, Macon, Ga.,

L. P. WEST, Washington, D. C.,

JOHN W. REAGAN, Knoxville, Tenn.,

C. E. FULLER, Buffalo, Kans.,

W. H. BRECHT, Des Moines, Iowa,

G. VENNEKLASSEN, Grand Rapids, Mich.,

A. A. AYERS, New York City,

F. W. BUTTERWORTH, Danville, Ill.,

Committee on Resolutions.

Mr. Bloomfield: I move the adoption of these resolutions as a whole and that the committee be discharged with the sincere thanks of this convention for the excellent duties performed.

Seconded by Mr. Sibley and carried unanimously.

John T. Hummert: There is one section in the resolutions that I would like to have a little information on and that is referring to the Trade School at Indianapolis. A year

ago we were asked to contribute to this school and I think it would be well to have a statement as to whether this school is in a healthy condition or whether it needs our assistance any longer, or whether it is progressing nicely and can get along without our help, and what the state of affairs is.

Secretary Randall: I am glad Mr. Hummert has brought that question up. I was under the impression that Mr. Smith, who addressed the convention yesterday, would make such a report as Mr. Hummert has asked for, but he has been called away without being able to say anything more to us. This is one of the instances I referred to of the lack of response by the brickmakers to correspondence. I sent out a series of three letters in regard to the puny little contribution of five dollars per member, which was agreed to unanimously at our last convention, and less than 25 per cent. responded favorably, and as a result the school did not get the fifteen hundred dollars which we figured would be the minimum amount realized by this subscription; instead we had but about \$600 to turn over to the school.

As to the condition of the school, I think Mr. Smith explained that pretty thoroughly. They have graduated something like twenty-five boys from the bricklaying school and, without exception, every one of these boys have become journeymen bricklayers and in some cases they were compelled to go into the union. They teach the young men how to lay brick and make efficient bricklayers of them. As to the financial status of the school, you can judge from my previous remarks they did not get half of the money they should have had last year. The school is now in a state of reorganization, the title Winona Technical Institute has been changed to the Indianapolis Trade School, and it is going to be supported by funds from private citizens, and I have very little doubt but that the school will be made a success. There is one little comparison I want to make. I was utterly astounded when there came to our city recently a convention of hotel stewards, an industry which does not begin to represent the wealth which our association does, and they took steps toward establishing and endowing a school for hotel stewards—cooks, if you please. And they put up \$200,000 with which they are going to build and maintain a school for the education of hotel stewards, and yet we, the manufacturers of brick in this country, can't raise more than six or seven hundred dollars. The school is in need of funds. What are we going to do about it. I doubt the advisability and effectiveness of again resolving that the members of this association be requested to pay five dollars. If the members of this association would give five dollars each, it would give them all the money they needed and in three years the school would be self-supporting. Mr. Smith told me that a number of the members had gone to him personally and pledged him their support. One member pledged him \$250 and there were a number of members last year who gave him pledges for \$30 and \$60. I think there were ten or fifteen firms who gave \$30. I know Mr. Blair and Mr. Bloomfield and myself each gave \$60; Mr. Crook, Mr. Purington, Mr. Ittner and others gave more and we will have to do it again if the school is to be supported. The Committee on Resolutions did the best they could with the question, but there is no money in the treasury of the association that will permit us to give the amount asked for. They wanted us as an association to give \$750 and then as individuals guarantee a like amount, but we can not give them \$750 out of the treasury, for we haven't that amount. I would like to see the school flourish. It is one of the best movements ever undertaken by the brickmakers of the country. It will give you journeymen bricklayers and you can not get them in any other way. Of course, some of our members say we have trade schools in our own towns which we have to support, and they can give one reason or another, but that doesn't help our bricklaying school. The fact remains they are out of money and it is a question as to whether or not we can support the school and give the paltry little sum they ask for, while the hotel stewards are giving \$200,000.

Mr. Hummert: There is another point. Have there been applicants enough apply to learn the trade at the school?

Secretary Randall: So far as I know they have been able to accommodate every young man who has gone there to learn a trade. I have appealed to the members of the

association and asked them if they knew of any young man of good habits who wanted to learn the trade of bricklaying to send him to that school.

President Blair: I visited the school a few days before I came away. The room in which the bricklayers' school is conducted is a room nearly as large as this. There were fourteen students at work and, while I did not pay much attention, I do know that there were some of them somewhat advanced. There were specimens of bricklaying all about the room. They would build these walls up so high and then tear them down to build up again. And there were fourteen boys engaged in that sort of work. My attention was particularly attracted by a boy who had been there about four months. He had built up a plain wall and he had never done any mechanical work until he had entered that school, and the work was a credit to any master bricklayer that might be found anywhere in the country. I was told by the professor in charge that almost every day or two a young man would apply who asked if there was a scholarship open that he could take advantage of and, as most of you know who have heard the talks in regard to the school, the scholarship in the school costs sixty dollars, and there is a little fund kept on hand all the time, contributed to by members of this association, to keep alive some of these scholarships. But there is no money available to meet the demands that are made upon the school by young men who feel themselves unable to pay sixty dollars at the start. I think if they could have a thousand or fifteen hundred or two thousand dollars in the fund the scholarships would be taken by worthy young men.

Mr. Hummert: The point is this: We have organized a publicity organization and we expect to increase the sale of brick by that publicity, and therefore we will want people to lay the brick. We had a very able paper read before the Illinois State Convention a week or two since by a gentleman from Chicago, who conducts a school called Coin's Industrial School. The gentleman who read this paper was named Mr. Smith and he was a very able talker. They are taking scholarships there at \$70. They have a good many young men and there are a good many fathers who have sons that they are willing should learn the bricklaying trade and are willing to pay for it themselves. It is well for everyone to know these conditions and where these schools are located, and that is why I bring it out here. It is our duty to urge young men to learn the trade, but we want to select the young men. This Prof. Smith said they only wanted first class young men who would work six days in the week and every week in the month right through the year. In many cases these men are in localities where they are forced to join the union, but, having learned their trade, they are full fledged bricklayers from the start and they are good mechanics, and the fact that these young men will be scattered throughout the country means that we will have more bricklayers and better bricklayers than we have had before and it is going to be an advantage to us. Someone asked the Professor if the boys would have to serve an apprenticeship after going into the union and he said no, they would go in on the full wage scale, so I think it is just as well that brickmakers know all about these things.

President Blair: No other announcement that I have made during this convention has afforded me more pleasure than to announce that the efforts to inaugurate at this meeting the new organization to advance and promote the use of brick in this country, has culminated into an effective organization and the report of what has been accomplished will be made to you by E. J. Burke, of Rochester, N. Y.

Report of the Organization of the Building Brick Association.

E. J. Burke, Rochester, N. Y.: If the statement should be made at the close of this splendid convention, as Prof. Orton has put it, that we had solved the problem of how to turn the wood house into a brick house by one branch of the organization, I believe it would receive very cordial support. In fact, I know of nothing which would create more enthusiasm among the members. I do not know whether there are any fatalists present, but there usually is in every audience. While Prof. Orton was making his talk about the success of the Pittsburg meeting, I remembered at the meeting in Chicago in 1894 Prof. Orton brought out his first idea on paving

brick. That was sixteen years ago and what has been accomplished in that time is known to all our members. The report the committee is about to make is of course entirely verbal. You know what little time the committee has had to get the organization itself together. If you will give me a few minutes of your time I will read the names of the men who have been selected to take into their hands the work of the Building Brick Association the coming year. As these names are read, I think you will recognize that they are representative men in our industry, and it would seem as though the troubles of the bricklayers' schools and the organizations that this association has fostered would quickly come to an end. What we have wanted all along is the greater use of brick in a simple way and in an inexpensive way, and it would seem as though the work of this association would result in a realization of our hope. This new association, as you know, will be called the Building Brick Association of America, and I give you herewith the list of officers.

List of Officers.

President—S. C. Martin, Pittsburg, Pa.
Vice-President—R. L. Queisser, Cleveland, Ohio.
Secretary and Treasurer—J. Parker B. Fiske, New York City.

BOARD OF DIRECTORS.

—Term Expiring February, 1911.—

F. W. Butterworth, General Manager Western Brick Co., Danville, Ill.



S. C. Martin, President B. B. A., Pittsburg, Pa.

L. G. Kilbourne, President Columbus Brick and Terra Cotta Co., Columbus, O.
S. C. Martin, President Kittanning Brick and Fire Clay Co., Pittsburg, Pa.
T. C. Moulding, President Thomas Moulding Co., Chicago, Ill.
John W. Sibley, President and General Manager Sibley-Menge Press Brick Co., Birmingham, Ala.
W. Stewart Smit, General Manager Twin City Brick Co., St. Paul, Minn.
R. E. Sunderland, Secretary Sunderland Brothers Co., Omaha, Neb.

—Term Expiring February, 1912.—

E. J. Burke, President New York Press Brick Co., Rochester, N. Y.
R. G. Eisenhart, Proprietor Horseheads Brick Co., Horseheads, N. Y.
E. A. Fisher, President Sayre & Fisher Co., Sayreville, N. J.
William Hanley, President Bradford Press Brick Co., Bradford, Pa.
Arthur D. Rogers, of the firm of Rogers & Manson, Boston, Mass.
Ralph Simpkins, Secretary Hydraulic Press Brick Co., Chicago, Ill.
C. B. Vernooy, Vice-President Illinois Brick Co., Chicago, Ill.

—Term Expiring February, 1913.—

J. M. Adams, Secretary and General Manager Iron Clay Brick Co., Columbus, O.
J. Howard Chambers, Vice-President and General Manager Chambers Brothers Co., Philadelphia, Pa.
Parker Fiske, Vice-President Fiske & Co., Inc., New York City.
S. M. Gould, Superintendent Ohio Mining and Manufacturing Co., Shawnee, O.
Chas. J. Henderson, Sales Agent Harbison-Walker Refractories Co., New York City.
R. L. Queisser, President Queisser-Bliss Co., Cleveland, O.
W. J. Snyder, Secretary and Treasurer Brazil Clay Co., Brazil, Ind.

Executive Committee.

S. C. Martin, Pittsburg, Pa.
R. L. Queisser, Cleveland, Ohio.
J. Parker B. Fiske, New York City.

Ralph Simpkins, St. Louis, Mo.
F. W. Butterworth, Danville, Ills.

Membership Committee.

J. C. Adams, Columbus, Ohio.
E. J. Burke, Rochester, N. Y.
R. E. Sunderland, Omaha, Neb.

Nominating Committee.

Arthur D. Rogers, Boston, Mass.
F. W. Butterworth, Danville, Ills.
Thomas Moulding, Chicago, Ills.

This list of names is only a starter. Every man who manufactures any kind of clay products, and brick in particular, is invited to become a member of this association. The committee this morning in getting together the figures as a basis from which we could work were astounded to know how the thing would grow. The money which the directors themselves would pay would total up five thousand dollars. We are getting along so well that it may be some time before the members in the small places will feel the necessity to come in and do anything in particular to help this movement along. But that is not the idea. I want you to carry on the good work. Every man who is a member of this association immediately becomes a missionary for the work on his own account. As soon as he becomes interested in the work of this association he will immediately do what he can to get others interested. The committee, of course,



E. J. Burke, Rochester, N. Y.

wants to find out at this time what the support is going to be right here in this convention. Are you going to support this movement with your money in order that the burden may be evenly distributed. If it is evenly distributed it is not a burden at all. The directors have divided the manufacturers into various classes, as follows:

Face Brick Makers.

Class A	Class B	Class C
20 million or more	Less than 20 million	Less than 15 million
\$250 per year	More than 15 million	More than 10 million
Class D	Class E	
Less than 10 million	Less than 5 million	
More than 5 million	\$50 per year	
\$75 per year		

Common Brick Makers.

Class A	Class B	Class C
50 million or more	Less than 50 million	Less than 25 million
\$250 per year	More than 25 million	More than 15 million
Class D	Class E	Class F
Less than 15 million	Less than 10 million	Less than 5 million
More than 10 million	More than 5 million	More than 2 million
\$75 per year	\$50 per year	\$25 per year
Class G		
Less than 2 million		
\$10 per year		

Brick Dealers.

A minimum fee of \$25 per year

Brick Machinery Manufacturers.

A minimum fee of \$100 per year

Publishers.

A minimum fee of \$100 per year

General Members.

A minimum fee of \$25 per year.

We have some subscription blanks here which we will be glad to have the members sign. As I stated in the early part of our remarks, this is a chance to show how enthusiastic the support is going to be among the brick men, and we hope you will take advantage of this opportunity to come up and sign your name to the subscription list.

While the committee was in session a number of the members reported how much business they had done last year so that they might subscribe their names to our list. As you know, it is the purpose of this association to get up a class of better literature, views of brick houses, plans of brick houses and a line of general information that can be sent out to parties contemplating building, to influence them in the use of brick instead of wood. If the brickmakers give this the support they should, we ought to have \$300,000 a year, and you may judge for yourself what we can do with that amount of money.

Secretary Randall: As I understand it, this committee report is made that we may know what has been done, and therefore I move the cordial unanimous acceptance and indorsement of this report.

Seconded by Mr. Hummert and carried.

Mr. Burke: Are there any questions that anyone would like to ask in regard to the details of this work? We want every man here to understand it thoroughly, so that he can explain it to his friends and so keep this movement going. There is no telling to what extent this movement will grow, and I am sure the more you think about it the more you will be impressed with it. As I said before, the members of our committee could scarcely credit what they saw when the returns began to come in. Now, gentlemen, we do not want you to go away with the idea that all the money is going to be spent on the face brick dealer. It is not so, it is going to promote the building of brick houses and it is going to benefit particularly the common brick man, he does not advertise. The dealer and the face brick man spend a large amount of money on advertising on their own accounts. This movement is broad enough that everybody has a chance to support it.

President Blair: Now, gentlemen, the hour has come when we are about to close the sessions of this convention. We have had one of the most delightful conventions in our history. I heard a gentleman say who had never attended this convention before, one who had no financial interest other than as an employe of some factory, that if his employer would add to his salary the sum of \$100 with the understanding that he remain away from attendance upon the National convention, that he would refuse the \$100 and pay his expenses out of his own pocket and attend the convention. Another gentleman in attendance at this convention, who had never attended a national convention before, said that from one of the papers read at this convention he felt sure he had received in money value the sum of \$500. We can gain some idea of the benefits to be derived from attendance at these conventions from the statements of these two members.

I trust and hope a similar experience may have been enjoyed by every attending member and that the enjoyments and benefits of the week will urge each one of us to do what we can to double the attendance the coming year. It has ever been the chief purpose and determination of this association to stand for the best and highest interests of the clay-working fraternity. Our common interests are so great and so vital to our prosperity that differences are but a trifle. So that under this twenty-four year old banner of the National Brick Manufacturers' Association we can unite with a solid front against every obstruction to be met in our march of progress, which is to be greatly facilitated by the campaign to be conducted under the name of the Building Brick Association of America. We have a right, therefore, to expect that reports of marked progress will be put upon this table at our next annual convention. We have been delightfully entertained by the people of Pittsburg and we will carry home with us many pleasant memories.



THE MOST NEARLY PERFECT SANITARY CONDITION
THE GREATEST COMFORT IN TRAVEL
THE LEAST COST OF MAINTENANCE
IS HERE TO BE DEMONSTRATED

ITHACA ROAD
CORNELL UNIVERSITY
NEW YORK

COURTESY OF THE
NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION
INDIANAPOLIS

I wish to thank the members of this Association for their cordial support and prompt responses you have made and the diligent attention you have given to the business of the convention. I thank you for the courtesy you have shown the Chair and extend to you best wishes for prosperity to all throughout the coming year.

J. W. Sibley: I move we adjourn sine die.

Seconded by J. Fred Smith, of Omaha, and carried.

WEDNESDAY EVENING'S SESSIONS AND SMOKER.

FOLLOWING the example set at Rochester and Columbus, an extra session of the N. B. M. A. was held Wednesday evening, and, if the size of the audience and the interest manifested are considered, evening sessions need not be tabooed. The meeting was called to order by Secretary Randall, who introduced Mr. Henry Hornbostel, one of New York City's well known architects, who delivered a most interesting and instructive lecture on "Brick in Architecture." He evinced great faith in building brick as the best medium for the expression of art in architecture, and made it plain to his audience the most beautiful as well as the most durable buildings may be built of brick, and gave optical demonstration of the truth of the assertion by displaying stereopticon views of many noted brick structures at home and abroad. The illustrations had been prepared for the occasion by Prof. Henry McGoodwin, who is associated with Mr. Hornbostel in the school of design and architecture at the Carnegie Institute. Mr. Hornbostel spoke without manuscript or notes, but has promised to furnish a transcript of his lecture for publication later on.

Following Mr. Hornbostel's lecture, by request of the engineering department of the University of Pittsburg, Mr. Will P. Blair, Secretary of the National Paving Brick Manufacturers' Association, delivered the following address on "Brick Paved Highways," illustrating same with interesting pictures of brick pavements, including views of the test pavement recently put down at Ithaca, N. Y., of which we present a photographic print in colors.

BRICK-PAVED HIGHWAYS.

BY W. P. BLAIR, INDIANAPOLIS, IND.

Mr. President and Gentlemen of the Convention:

That the interest of a manufacturer of a machine or appliance should follow it into the hands of the consumer, that he should instruct and advise as to the manner and method of its use in order to obtain the best possible service, has for years been accepted as perfectly proper. It is conceded that a sensible manufacturer designs his product for public appreciation, and the effort is to produce something that will wear indefinitely or serve its object most perfectly and depend upon increasing popularity in an ever-extending market to absorb the product. The manufacturer who pursues any other course either fails to realize the market of 10,000,000 consumers offer, or is attempting commercial suicide.

New and untried articles are generally put out by demonstrators and in recent years several of our largest and most successful manufacturing industries have been built upon the exploits of these so-called experts. The reaper grew into its present state of perfection not in the factory, but out in the wheat field, where representatives of different machines vied with each other to make the record cut under test conditions. Weakness thus exposed was immediately corrected, and in this line we no doubt have the survival of the fittest.

That an article of such common, everyday knowledge as a brick needed any such expert demonstration was doubted by the manufacturer himself, and practically hooted at by the public, but as the public grows wiser it realizes how little it really does know.

Probably one of the first branches of the clay industry which found it necessary to employ experts was the drain tile man, who found himself flooded with complaints that water would not run through his tile, and who generally found that an attempt had been made to run it up hill instead of down, that there had been an attempt to put 8 inches of water through a 6-inch tile, or at the whole trouble arose from an idea that the tile ought to let water through its pores instead of at the joints, and with this in view, a tile so soft had been employed that it was soon dissolved and the flow stopped.

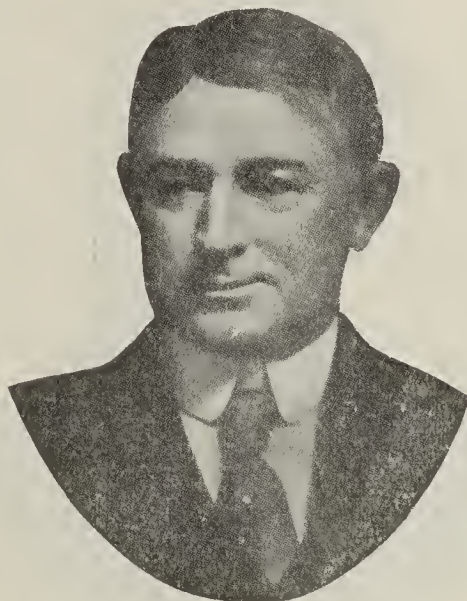
There is perhaps no part of municipal work which has been subjected to more experiment than street pavements. There is no part of the work, on the other hand, that is simpler of solution in way to be satisfactory to the user, economical to the taxpayer, and a credit to an administration. The solution is a brick pavement carefully, properly constructed, in the manner which the manufacturers recommend, and which they are endeavoring to impress upon the servants of the public, and which to obtain they are bringing as much influence to bear as is possible to exert through the channels of legitimate advertising and publication for free distribution of text books upon the subject.

The effect of this campaign is to at least occasionally secure a piece of pavement which is an object lesson to the neighboring towns and a stimulus to the business in that community, for, once the merits of a thoroughly good brick pavement become known, the property owners, who pay the bills, insist that no other material be used. In spite of these proven conditions, however, we find an occasional manufacturer who is so indifferent to his own interests that he allows, without expostulation, his material to be used to its greatest disadvantage and refuses to bear his proportion of the expense necessary to an education of the public. Gradually competition closes in around him and his plant is offered for sale, the confidence in his material destroyed at home and its reputation gone in outside markets—simply a result of a shortsighted policy, avoiding responsibility after his product has passed his kiln doors or he has received his money.

The effect of the attitude of the manufacturer of paving brick upon the public is far more serious and far-reaching. Truthful, reliable information upon the subject of paving material in general, and the manner of constructing brick streets in particular, means the saving of thousands of dollars annually to the taxpayer in repairs and maintenance, as well as first cost, and means comfort and satisfaction to all who use the public highways, to say nothing of the cheapened cost of transportation.

Engineering problems have been many and varied during the last past decade. In the designing and building of bridges and edifices of many kinds, in the building and equipping of steam and electric lines, water works and electric lighting, the skill and ingenuity of the engineers has kept pace with the progress of civilizing advancements. It is a fact, however, inexplicable as it may be, that the designing and construction of vitrified brick roadways, as they have been built for the most part in the last ten years, has been a wanton waste of money; viewed from an engineering standpoint, a disgrace to some one and an awful burden upon the taxpayers.

At whose door this responsibility shall be laid, I will not under-



R. D. Culver, Veedersburg, Ind.

take to determine. Interested as I am in the brick business, if I could revolutionize this condition of things I would gladly do so. I believe the engineers of the country can, if they will, so change the practice in building vitrified brick roads that those that are to be built in the future shall be similar in quality to those that are found in such cities as Cleveland and Sandusky, Ohio, and Grand Rapids, Mich. Regardless of the influences that have induced and persuaded brick street building as now obtains, is it not possible to reach such a certain conclusion by reasoning together as will properly direct and cause us to build brick streets at their best?

I have been actually present on few jobs where the sub-grade has been properly and carefully prepared so that it conformed to the grade of the finished street. The sub-grade is often devoid of any proper compression. In most instances, no two consecutive square yards are alike; one square yard may be to grade, but the next one may be 1 inch below grade, but *exactly to grade* is a condition not found. (Not infrequently the specifications require the use of a roller so heavy that it is quite impossible to compress the sub-grade at all.)

In the very next step it necessarily follows that a uniform thickness of foundation is impossible. However, the first defect mentioned might be cured to a very considerable extent (by increasing the concrete in depth wherever necessary), but here we are met by the contractor's selfish interest, and it is next to impossible to compel him to put in more than the required depth of concrete foundation that the surface of it may be uniform with the grade of the finished street, and that it be made smooth, for it is absolutely essential in the construction of a brick street that the surface of the concrete foundation be made smooth. Now, what I mean by smooth is, not that it shall be perfectly smooth; rather, that it shall be so nearly smooth that no depression shall be found or elevation permitted exceeding a quarter of an inch above or below the proper grade.

I know that for the engineer to require this condition of sur-

face is often met with a very serious objection. I have had many contractors insist that it is not possible to procure either broken stone or gravel in size or in any proportion of mixture making possible this requirement, and engineers requiring it have been denominated cranks, to my knowledge. Yet concrete foundations have been put in exact accordance with the contract specifying that this shall be done. Without such a prerequisite there is no possibility of using a 2-inch sand cushion upon which the brick are to be laid.

But why a 2-inch sand cushion? And why not a 1-inch sand cushion, as is known to have been called for by the government in one of its navy yard specifications, and under which proposals are to be received within a few days. *Why not 1 inch?* Simply for the reason that 1 inch will not afford sufficient relief from the vibration formed by the impact of hoof or vehicle upon the street. The suggestion may be made that the brick should be hard and tough enough to withstand the action of the vibration, but not so. Take away all relief and what is the result? With a small tack hammer you may chip and in a very short time the entire brick may be broken away, if it be placed upon an entirely rigid surface.

Why 2 inches? Without undertaking to give you the physical reason, I will simply say that a 2-inch sand cushion does afford the necessary relief to protect the brick against chipping and destruction from the vibration to which it is necessarily subjected.

Why not more than 2 inches? For the very reason that it is impossible to compress exceeding 2 inches to a condition that will afford any support to the load to which it will be subjected incident to ordinary travel.

So the brick must have this necessary relief; they must have the necessary support, in order that the surface of the pavement, under constant use, will remain free from depressions; in order, also, that the cement filler with which the interstices are filled be not necessarily subjected to a strain that might shatter, crush or tend to crush such joints. A brick street, to be entirely satis-



Elliot S. Morse, Washington, D. C.

factory, must be entirely free from depressions, every part conforming to the grade. This condition must obtain at its construction and remain so during its use, so that the traction resistance shall be at a minimum and the wavy condition avoided. This result must be anticipated in the preparation of the sand cushion, first spread at the estimated depth of 2 inches and these depressions avoided by the use of a hand roller, weighing, say, from three to four hundred pounds; additional sand applied, rolled and screened again, I should say, at least three times. At the last screening it will be found that the uncompressed sand will not be over $\frac{1}{4}$ -inch in depth at any one point. With such a condition it can be readily perceived that when the brick shall have been placed upon such a cushion, no greater compression will follow the use of the roller upon the brick than is necessary to take care of the uneven height of the brick themselves.

It is certain also that in ironing out what few depressions remain and compacting the brick into the cushion but very little sand will be pushed into the interstices by the final rolling. By this suggested method the grade of the finished street may be conformed to most perfectly. It is often the case that specifications should contain express directions as to manner and method of work; otherwise, it would not be possible to reach results desired. This is particularly so in brick street construction.

The brick should be dropped in straight lines upon the sand cushion, with the best edge of the brick uppermost. Economy for the contractor would require that the brick be brought to and deposited within reach of the person who actually lays the brick in a way that will accommodate his method of dropping them in place, insuring the best edge uppermost. Yet many contractors will insist that dropping them in any way, wrong edge or right edge up, in the street and then paying for the service of a man to turn them over with tongs is an economical method. But, previous to dropping the brick in the street, attention must be given to the necessary provision for expansion cushion next to

the curb. It too frequently happens the arrangements for this are improvised without thought as to results.

The board should be prepared by beveling a joint eight (8) inches in width, the thickness determined largely by the width of the street. Even in a narrow street the expansion cushion should not be less than 1 inch; $1\frac{1}{4}$ -inch for a 30-foot street, and $1\frac{1}{2}$ -inch for a width exceeding 30 feet. This board should be placed next to the curb, worked slightly into the sand cushion before the brick are laid, and remain until the street is finished in all other respects, after which it should be removed within twenty-four (24) hours following the application of the cement filler. The board beveled and being eight (8) inches in width, it is very easily and rapidly removed, leaving a perfect groove in which to pour the cushion material.

After the brick are dropped into the street the surface should be swept, precaution theretofore exercised that no brick go into the street which are dirty, or, after in, that they are not made so by use, as it is impossible for the cement filler to adhere to a dirty surface. After the sweeping, thorough rolling must take place by the use of a roller not weighing over five (5) tons.

As to the filler, the most difficult problem is to convince the public of the utter worthlessness of all other fillers in comparison with the cement filler, and to bring about a full appreciation of the necessity of the proper application of the cement filler. A cement filler that is mostly cement is too brittle, and one that is less than in proportion of one to one is too weak and soft. The specifications must therefore call for a proportion of one to one, and the necessary skill must be employed to put in place in such proportion; if otherwise, the so-called cement filler is unsatisfactory. Compliance with the simple rules we employ will secure the result, exacting, but easy and economical to follow. Why not follow them rather than the hundreds of different methods that invariably bring a failure?

The filler shall be composed of one part each of clean, sharp sand and Portland cement. The sand should be dry. The mixture, not exceeding one-third bushel of the sand, together with a like amount of cement, shall be placed in the box and mixed dry, until the mass assumes an even and unbroken shade. Then water shall be added, forming a liquid mixture of the consistency of thin cream.

The side and edges of the brick should be thoroughly wet before the filler is applied, by being gently sprinkled. From the time the water is applied until the last drop is removed and floated into the joints of the brick pavement, the mixture must be kept in constant motion.

The mixture shall be removed from the box to the street surface with a scoop shovel, all the while being stirred in the box as the same is being thus emptied. The box for this purpose shall be 4 feet 8 inches long, 30 inches wide and 14 inches deep, resting on legs of different lengths, so that the mixtures will readily flow to the lower corner of the box, the bottom of which should be 6 inches above the pavement. This mixture, from the moment it touches the brick, shall be thoroughly swept into the joints.

Two such boxes shall be provided in case the street is 20 feet or less in width; exceeding 20 feet in width, three boxes should be used. (See specifications for making same.)

The work of filling should thus be carried forward in line until an advance of 15 to 20 yards has been made, when the same force and appliances shall be turned back and cover the same space in like manner, except to make the proportions two-thirds Portland cement and one-third sand.

To avoid the possibility of thickening at any point, there should be a man with a sprinkling can, the head perforated with small holes, sprinkling gently the surface ahead of the sweepers.

Within one-half to three-quarters of an hour after this last coat is applied and the grout between the joints has fully subsided and the initial set is taking place, the whole surface must be slightly sprinkled and all surplus mixture left on the tops of the brick swept into the joints, bringing them up flush and full.

After the joints are thus filled flush with the top of the brick and sufficient time for hardening has elapsed, so that the coating of sand will not absorb any moisture from the cement mixture, $\frac{1}{2}$ -inch of sand shall be spread over the whole surface, and in case the work is subjected to a hot summer sun, an occasional sprinkling, sufficient to dampen the sand, should be followed for two or three days.

It is impossible in a paper of this kind to enter into and discuss all the details of construction essential in building of a vitrified brick street at its best. But is not their importance of sufficient interest to command serious attention? In 1909, 8,000,000 square yards of brick pavements were laid in Indiana.

The difference in cost between a good brick street and a bad brick street is so little that it should not be considered. It is true that a matter of one, two or three thousand dollars in the cost of a whole street seems like a saving if a street could be built for less, but considered in connection with the cost of the whole street, which often ranges from forty to one hundred thousand dollars, the advantage to be gained by saving one, two or three thousand dollars is infinitesimal.

As to the difference in actual cost—take, for instance, the foundation, the point wherein a brick street fails more often than in any other respect is that it is put in with a rough and uneven surface, instead of a smooth surface conforming to the grade of the finished street. Now, the increased cost necessary for the contractor to have the foundation smooth can not possibly exceed the cost of one of the roughest character 1 cent a square yard. If, however, this foundation is left in a roughened condition, in all likelihood the real value of the street, both as to its durability and possibilities of its use, decreases fully 50 per cent.

Again, supposing the foundation is made right and a sand cushion of 1 or $1\frac{1}{2}$ inches in thickness, or a sand cushion utilized

on which the compression is very uneven, so that it can not be maintained at a uniform 2 inches, in such cases the difference in cost of a sand cushion put in lacking in either quantity or condition can not possibly be accomplished at a saving of more than 1 or 2 cents a square yard less than one exactly and uniformly 2 inches, thoroughly compressed. Yet the want of the uniform 2-inch properly compressed sand cushion insures a percentage loss in the value of the street of more than 50 per cent.

Again, a step upon which depends the highest possibilities of the brick street—the proper rolling of the brick after they are in the street, and the ironing out of any slight depressions found to exist can not possibly differentiate in favor of insufficient and improper rolling exceeding even 1 cent a square yard.

Again, as to the proper application and use of the cement filler, there is no excess of cost either in the use of cement as a filler or its proper application over and above that of an improper application, or the use of some soft, absolutely worthless filler that is often utilized for this purpose at a cost greatly in excess of the cement filler properly applied, the value and satisfaction of which meets every demand.

To sum up, therefore, in actual money expenditure, the difference in the construction between the good brick street and the bad brick street can not possibly exceed 10 cents a yard, to say nothing of the great advantage to be obtained in the good brick street in meeting every possible requirement of an exacting public in its use, as well as securing the utmost economy by reason of the great durability.

All this is not said by way of complaint. The ability of the engineer is not doubted, but human nature is alike in all professions and in all callings. Indifference toward many things comes alike to all of us—likewise our interest. So our attitude in this whole matter is one of petition. Our attitude is not much different from the little boy who closed his eyes and prayed for a white rabbit, but, on opening them, beheld no white rabbit. He closed his eyes a second time and prayed, with the same result. The

third time he prayed vehemently, not even closing his eyes, saying, "Lord, we want that white rabbit, and WE WANT IT NOW!" (Applause.)

(The lecture was illustrated by a number of stereopticon views illustrating the methods of proper construction.)

THE LOCAL COMMITTEE'S ENTERTAINMENT.

At the close of Mr. Blair's lecture, Mr. Carl Cappel, Mr. Evans Jones, Mr. E. C. Clark, Mr. W. E. Sankey and other members of the local contingent led the way from the convention hall into the main dining room of the Fort Pitt, where refreshments, solid and liquid, were served without limit, with the compliments of the Pittsburgh Clayworkers Association. A series of rollicking songs were rendered by a band of professional musicians and vaudevillians, who literally made the welkin ring. It was a wholly informal entertainment that was thoroughly enjoyed by all who gained admission. The immense room was taxed to its limit, every available bit of space being occupied. It was purely a "stag" party, the ladies having been taken to the theater earlier in the evening. It is rumored, though, that on their return to the hotel, hearing sounds of revelry, a number of them made diligent though vain efforts to learn the cause of the hilarity, but the curtains were drawn tight, and they had to content themselves with the echo of the good time going on within, which found its chief expression in the form of popular ditties. It was a songfest, rather than a smoker, and the local committee were emphatically declared great entertainers.

THE ANNUAL BANQUET.

A Superb Social Function, Charming in Every Detail.

"The music in my heart I bore,
Long after it was heard no more."

THOSE who participated in the associational dinner at Pittsburgh will ever remember the sumptuous setting, the beautiful floral decorations, the fine orchestral music, splendid male quartette, and the incomparable singing of the Mozart Club, which, 150 strong and under the directorship of J. P. McCollum, rendered "We Are the Sons of Mars, the Mighty," from Arminius, and as an encore, the "Hallelujah" Chorus from Handel's Messiah, in a most impressive manner. This feature of the entertainment was a surprise to every one, and for it thanks are due to Mr. E. C. Clark, of the Martin Brick Company, who is an active member of the Mozart Club.

It was a happy throng which surged through the massive doorway into the beautiful banquet hall of the Fort Pitt Hotel at 8 o'clock Thursday evening. Plates were laid for four hundred, and almost every seat was taken when President Blair asked President McCormick to say grace. The richly gowned women and their jovial escorts formed an animated picture that is seldom equalled. The dinner, though excellent and well served, was by no means the chief attraction. The oratory which followed held the immense audience patiently until the last word was spoken.

THE MENU.

Blue Points.
Assorted Relishes.
Cream of Chicken.
Sweetbreads with Spinach.
Filet Mignon Eugene.
Fresh Mushrooms.
Potatoes au Gratin. French Peas.
Lettuce and Tomatoes.
Fancy Ice Cream.
Assorted Cakes.
Cheese. Coffee.

The menu card itself was very pretty, having the monogram of the Association embossed in red as its chief decoration. With it at each plate was laid a Book of Songs, containing a score or more of popular songs, old and new, beginning with America and ending with "Auld Lang Syne." The

spirit with which a majority of the banqueters joined in these melodies added materially to the joy of the occasion.

President Blair: It is with much regret that I am compelled to say to you that we are without the presence of a gentleman who is highly esteemed in this country, Dr. J. A. Brashear. Unfortunately, he is detained at home on account of illness in his family, but Pittsburgh has never been known to be placed at a disadvantage in any emergency. If a flood comes down the mountain side at the midnight hour, when you are all asleep, or when you ought to be asleep, (laughter) it does not seem to make very much difference. A flood like you enjoy from time to time disturbed all the city of Paris for weeks and they are not likely to get over it for several years to come, but you would face a catastrophe like that one day and next evening be ready for business.

I would like to request Dr. S. B. McCormick, Chancellor of the University of Pittsburgh, to stand before you for a few moments. Dr. McCormick, believe me or not, I wish to say to you that the members of the National Brick Manufacturer's Association have always been in sympathy with all educational efforts in this country. Especially do we feel a kinship, kindness and respect for the technical institutions of this country, for without the engineers and without the architects we would be at a decided loss in our business and we would not be in the condition we are tonight, coming to Pittsburgh with glad hearts and smiling faces. We desire to make you our guest for the evening, and if you will permit I will pin upon the lapel of your coat a guest badge, and, in addition, with your permission, I desire to turn over to you the whole bunch. (Laughter and applause.) You may do with us just what you please; you may set these gentlemen upon us with any instructions that you please. You may cajole, you may abuse us, you may do anything that is permissible upon an occasion of this sort.

Toastmaster's Introductory Address.

Dr. S. B. McCormick: Ladies and gentlemen—It has been suggested that I may do anything, according to that commission, except touch you, and as that is my chief occupation in life, I am afraid I am deprived of it right at the start. Mr. Blair, I count myself really very happy to be put in this position tonight. I confess I scarcely know where I stand. It seems as though I have been elected as Chaplain-extraordi-



A FLASHLIGHT PICTURE OF THE BANQUET HALL, FORT PITT HOTEL, PITTSBURG, FEBRUARY 10, 1910.

nary of the National Brick Manufacturers' Association. I have just been made a guest of the Association in this delightful little address of your President, and a reference to the program indicates that I am one of the speakers of the occasion. Just now the "whole bunch" have been put into my hands to do with just as I will. This, naturally, would confuse any man. One thing, however, is sure, that I am delighted to be one of you tonight and to feel that for this night at least I am a member of your Association. It would not be fitting for me to enter upon the exercises of the evening without just a word of reference to the man you had chosen to occupy this position—Dr. Brashear. I say it not for the information of the Pittsburg citizens, but for the information of those who are strangers to Pittsburg tonight, that Dr. Brashear occupies the honored place in this community of first and best beloved citizen. (Applause.) Every person in Greater Pittsburg and beyond the limits of our city know the beautiful devotion which is mutual between Dr. and Mrs. Brashear, and it is a thing which touches the heart of all our citizens tonight that it is because of the very serious illness of Mrs. Brashear (I think it is the only thing that would have kept him away) that has caused Dr. Brashear's absence this evening, and, consequently, the duties he would have assumed rest upon me, and it is only my willingness to step in and be of any service I can that constitutes my fitness to occupy the position as director of exercises at this time.

There is another explanation I want to make and that is with reference to the poetry to which I may occasionally refer in introducing the speakers of the evening. It is beautiful poetry, as you will discover later on; it is quite appropriate and fits the occasion splendidly, and I can not take any credit for it. It has been put upon paper before me in typewritten form, and my only function is to dole it out to you at the proper place, so you may be able to judge of its merits. I am sure you will enjoy it. You will be able doubtless to discover in the paragraphs which I will read to you during the evening, something of its authorship. I shall go on simply performing the function assigned to me. I want, however, to express more fully my sense of appreciation at being present at this splendid gathering. I was told yesterday afternoon that more persons had registered up to that time than usually register at the close of the sessions, and that there were more persons present at the beginning of your session than are usually at the close, and I am sure from what I have seen of it that it is one of the very best Associations of our country. (Applause.)

Recently one of our former Pittsburg citizens, long a resident of Philadelphia, was present at a little gathering in our city and told me the following story of a little boy who went to his mother and said, "Mother, do you know that our ash man is a better man than father?" "Why no," said the mother. "Yes," said the little boy, "the ash man is a better man than father." "Why," said the mother, "I don't see how it can be true." "Yes it is, mother; I am sure the ash man is a better man than father." "Why," said his mother, "your father is one of the best men in town. He is an elder in the church, a teacher in the Sunday-school, and I don't think there is a better man in our town than your father." "Well, mother, I think the ash man is a better man than father. Do you know this morning the ash man came around with his donkey and cart to get the ashes from our back yard, he backed his cart up against the curb and then he got the ash can and it was so heavy, mother, he could hardly lift it and he carried it over to the place where the cart stood, and just as he lifted it up to place it on the cart the donkey moved forward and the can fell down on the street and burst open and scattered ashes all over the street, and that ash man just sat down on the curb and began to talk to that donkey. He talked to it about God, and hell, he talked to it about Jesus Christ, he talked to it about the devil and about Heaven, and I don't think father would have done that." (Laughter and applause.) In my opinion, there is no better organization than the National Brick Manufacturers' Association (applause) if I am able to judge from the evidence I have seen yesterday and today, and for this reason I am simply delighted to fill this position, inadequate as I am for the task that has been assigned me. Last week I was in New England, where I attended a banquet, and in connection with the exercises one of the most brilliant men I have ever

met occupied the position as toastmaster. I never met a man who did the work better; in fact, he was an adept at it, but he spoiled the whole meeting by doing all the talking. After I have finished these few introductory words, I promise to allow the other fellows to do the talking. I find the first person on the program is Mr. Wm. C. Ball, of Terre Haute, Ind.

"Now, Mr. Ball, of Terre Haute,
Will speak of one we know by rumor,
Whose sorrows manifold he'll note—
The 'Ultimate Consumer.'"

Many of you know Mr. Ball certainly better than I know him, but I know about him. I know he is a typical Hoosier, at least I have been so told. I am also told that he is a splendid orator, and that he is the president of the board of trustees of the Rose Polytechnic Institute. I am told that in addition to his interests in education he is interested in reform, and has for twenty-four years or thereabouts been on the Board of Reform of the State of Indiana. I am furthermore told that he has for more than thirty years occupied the position of editor of one of Indiana's newspapers, having in his hand the power he sometimes exercises of telling the National Brick Manufacturers' Association members just what he thinks of them, and I am sure we give him authority tonight to say just what he will. He comes as a representative of "The Gentleman from Indiana," and I am sure you will all give him a hearty welcome. (Applause.)



Toastmaster S. B. McCormick, Chancellor University of Pittsburg.

"THE ULTIMATE CONSUMER."

BY WM. C. BALL.

Mr. Toastmaster and Gentlemen:

Of all the crafts the most ancient, I take it, is that the descendants of whose first followers are gathered in this spacious hall and about these tables. So, if wine improves with age, what shall be said of the mellowness of you gentlemen (I do not refer to any agencies of this banquet in the process) whose craftsmanship has been ripening not only through the ages of recorded history, but back to and beyond the days of Babylon, where brick were made, and good ones, too, as you can see in many museums where specimens are preserved. But Babylon is as yesterday in time, and the valley of the Euphrates as the Monongahela in proximity to the remoteness in time and place of brick-making.

Surely, gentlemen, at any rate you, Mr. Toastmaster, have not forgotten your early lessons. On one minor point, I confess, my own recollection is hazy. I have forgotten whether it was a Sunday-school lesson or a copy book maxim. But in one place or the other it was said with a solemnity and reiteration that carried conviction, that "Hell is paved with good intentions." (Laughter.)

Now, I am a mere layman in the matter of brick. I know no more of brick than comes from walking on and riding over them, of living within walls built of and decorated with them, and am really of as little consequence as the "Ultimate Consumer" always is when raiment is to be divided or when a tariff committee is in session. So I have no real knowledge of the "Good Intentions" brand of brick. Possibly some of you men make the brand.

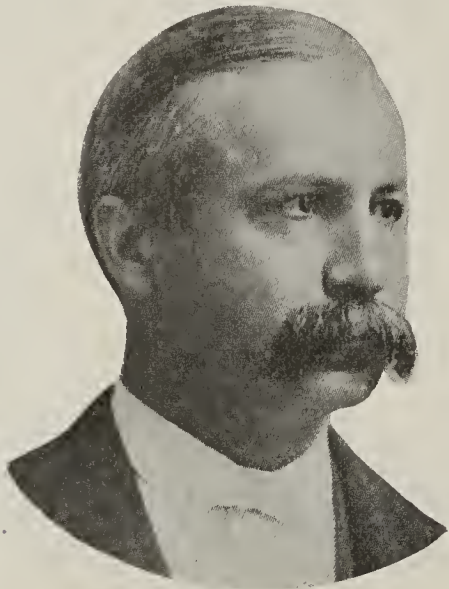
However, I take it to be a not unreasonable nor strained hypothesis that it is a hard-burned, double-extra vitrified brick, in view of the location of the kilns. As to that, though, one can not be absolutely sure, for hell is a far country. Let me illustrate:

Once upon a time a wealthy New Yorker fell ill. Diagnosis

showed it to be serious. A consultation was held. A surgical operation was decided on. The patient was notified. He was told that the case was serious and that the result could not be foretold. He was advised to prepare for the worst and set his affairs in order. So one bright, sunshiny day, about the noon hour, he was taken from his room in the hospital to the operating table, placed under the influence of an anesthetic and the operation performed. Later he recovered consciousness and saw in the dim light of the darkened room a white-robed nurse. His first question was: "Why is it so dark?" The nurse answered: "The doctor was here a few minutes ago and saw that you were about to recover consciousness. He told me to pull down the shades and make the room as dark as possible, for there is a big fire in the next block and he was afraid if you woke up and found a glare in the room you might think the operation had been unsuccessful." (Laughter.)

Long years ago, Mr. Toastmaster, it was said that "Evil communications corrupt good manners." You gentlemen are demonstrating by your daily walk and work that this phrase is only a partial and one-sided statement of a great truth.

"Evil Communications," meaning evil speech, do corrupt good manners. But it is equally true that good communications, meaning not only good speech, but also the means of bringing men together for speech in safety and comfort and speedily (as I have come here from my home on "the banks of the Wabash, far away"); in a word, good highways—good brick-paved highways, if you please, for I imagine you will agree with me that they are the best, especially since auto touring cars have taken to flinging into the air millions of tons of pulverized gravel and rock for the wind to blow over fields and into houses. But I am, in my enthusiasm, following a brick-paved bypath. Let me return to the highway of my remarks. Good communications, meaning good highways, by enabling men whom God has placed far apart to get together—this sort of good communication not only corrects



W. C. Ball, Terre Haute, Ind.

bad manners, but makes better manners already good. It brings men together in comfortable frames of mind, cheerful and happy, and ready for courtesy and all the kindlier arts and acts. Politeness and a group of gracious things thus come about. All this is condensed in our English speech in the words from the Latin meaning "city." The deeper meaning is that city dwellers, living together as they do, and so within easy communication of each other, as compared with those less fortunately situated in this respect, get politeness; that is, to say good manners; get it because of this close and good communication. Men rub up against one another, brain to brain, and that gives polish and politeness.

So you see, Mr. Toastmaster, and you, too, gentlemen, if my philology and logic are conclusive, that you are not merely brick-makers, but also Turveydrops, professors of deportment and etiquette, maybe even of dancing.

And you are greatly right, as right as right can be, in encouraging politeness. Again let me illustrate:

A very gracious gentlewoman is a member of the Episcopal Church in my town. The rector thought he observed that every time the name of His Satanic Majesty was mentioned in the service this gentlewoman bowed her head. Confirming his first suspicion by closer observation, he finally told her what he thought he had seen, saying that, of course, she understood there was nothing in the canons of the church requiring or suggesting any such action. "Yes, I know," said she, "but it costs nothing to be polite, and one never can tell what may happen." (Laughter.)

I am glad, Mr. Toastmaster, to be here tonight. My former townsman and friend of many years, Mr. Will P. Blair, on every convenient occasion during the years of our acquaintance, has poured into my listening ears the tale of brick, of paving brick, and it vitrified, of paved streets better than the much-vaunted gold streets of the New Jerusalem. Of recent years, since he has become Secretary of the National Paving Brick Manufacturers' Association, he has not had as many opportunities to sing his song of paving to me, and so I fancy he has invited me here for an allopathic dose of the dope he has been administer-

ing to me homeopathically. Medicinally, I have learned one thing. Allopathists also know how to sugar-coat their pills, if this banquet is a fair sample of your pharmacopeia. (Laughter.)

Besides, Mr. Toastmaster, and I hope I may not be overstepping bounds of becoming modesty, you have done well in inviting me as an average representative of the brick-using class. We are the "Sons of Mary," and as such have our rights and privileges.

In St. Luke's gospel it is related that Jesus and his disciples entered into a certain village, where a woman named Martha received Him into her house. Martha's sister Mary seated herself at Jesus' feet to listen to His discourse, while Martha busied herself with the household duties incident to the entertainment of her numerous and unexpected guests. Needing Mary's assistance, for her duties pressed, Martha called her Chief Guest's attention to the fact and requested Him to bid Mary help her. I now quote literally:

"Jesus answered and said unto her:

"Martha, Martha, thou art careful and troubled about many things. But one thing is needful; and Mary hath chosen that good part, which shall not be taken away from her."

Now it is no part of my present purpose to preach a sermon on this passage of scripture. Rudyard Kipling has used it as the theme of a poem, entitled, "The Sons of Martha," which has the sonorous swing for which he is famous. Let me quote:

"THE SONS OF MARTHA."

The Sons of Mary seldom bother,

For they have inherited that good part,
But the Sons of Martha favor their mother
Of the careful soul and the troubled heart,
And because she lost her temper once,
And because she was rude to the Lord, her guest,
Her sons must wait upon Mary's sons
World without end, reprieve or rest.

It is their care in all the ages
To take the buffet and cushion the shock;
It is their care that the gear engages;
It is their care that the switches lock;
It is their care that the wheels run truly;
It is their care to embark and entrain,
Tally, transport and deliver duly
The Sons of Mary by land and main.

They say to the mountains, "Be ye removed!"
They say to the lesser floods, "Run dry!"
Under their rods are the rocks reproved—
They are not afraid of that which is high.
Then do the hilltops shake to the summit;
Then is the bed of the deep laid bare,
That the Sons of Mary may overcome it,
Pleasantly sleeping and unaware.

They finger death at their gloves' end when
They piece and repiece the living wires.
He rears against the gates they tend;
They feed him hungry behind their fires.
Early at dawn ere men see clear,
They stumble into his terrible stall,
And hale him forth like a haltered steer,
And goad and turn him till even-fall.

To these from birth is belief forbidden;
From these till death is relief afar—
They are concerned with matters hidden,
Under the earth line their altars are.
The secret fountains to follow up,
Waters withdrawn to restore to the mouth,
Yea, and gather the floods as in a cup,
And pour them again at the city's drouth.

They do not preach that their God will rouse them
A little before the nuts work loose;
They do not teach that His pity allows them
To leave their work whenever they choose.
As in the thronged and lightened ways,
So in the dark and the desert they stand,
Wary and watchful all their days,
That their brethren's days may be long in the land.

Lift ye the stone, or cleave the wood,
To make a path more fair or flat,
Lo, it is black already with blood
Some Sons of Martha spilled for that.
Not as a ladder from earth to Heaven,
Not as altar to any creed,
But simple service, simply given
To his own kind, in their common need.

And the Sons of Mary smile and are blessed—
They know the angels are on their side,
They know in them is the Grace Confessed,
And for them are the mercies multiplied.
They sit at the feet and hear the Word—
They know how truly the promise runs.
They have cast their burden upon the Lord,
And the Lord, He lays it upon Martha's Sons.
(Applause.)

So you see, Mr. Toastmaster, and you gentlemen, we "Ultimate Consumers," whatever may be the facts in actual life, Biblically and poetically, rather have the "age" on you producers. We are the Sons of Mary. You are Sons of Martha. As a Son of Mary, I commend your industry. Keep it up. Get busy. Build

for us Sons of Mary statelier mansions. The best is none too good for us. Pave all our highways, country roads as well as city streets, so that we may ride abroad in peace and comfort and enjoy that pleasantest of all spectacles—another fellow at work. (Applause.)

Toastmaster McCormick: There is a popular belief in Pennsylvania that a man does not get in respectable society in Indiana unless he writes a book or is the editor of a paper or is a poet. Through the Secretary of this Association we get the poetry, and through the speaker who has just sat down we are confirmed in the opinion that Indiana produces only literary men. I am going now to go to St. Paul for the next speaker, but before doing that I want to identify myself more perfectly with this Association by reading a little poem on Pittsburg:

"Here gather we in Pittsburg town,
Sometimes maligned for its complexion,
But bubbling over with renown,
Seven and fifty kinds set down—
Hans Wagner comes in this connection,
Nor should we here omit to mention
The glad hands given this convention."
(Applause.)

This is not Pittsburg poetry; as I said before, it comes from Indiana.

We have a high regard for St. Paul—St. Paul, the apostle, and St. Paul the city. I was up there a few weeks ago, and it is one of the most enterprising cities in the United States. It is a finished product of the brick manufacturers' art. Mr. Siwart Smit will talk to us on "The Point of View," rather than "Imagination," as was given on the program, and the subject which is referred to in my little piece of poetry:

"'Imagination' is the theme
Assigned to Siwart Smit, Saint Paul,
We'll soar with him up through the blue,
Of Spanish castles get a view—
Then down again to earth we'll fall."

I do not know whether Mr. Smit will speak to us in French, German or Spanish; I do know he is capable of speaking to us in any of these languages, but I suppose it will be well for him with this audience to confine himself to one language. (Applause.)

"THE POINT OF VIEW."

BY MR. SIWART SMIT, ST. PAUL, MINN.

Mr. Toastmaster, Ladies and Gentlemen:

When a man born in a non-English speaking country is called upon to respond to a toast and in the English language, he is apt to feel like the darkey who for the first time in his life visited New York City. He walked along Broadway with a friend of his, another darkey called John. Not being used to the streets of a big city, he wanted to cross in the middle of the block. His friend kept him back and said, "Don't do that, they will take you for a green Swede." (Laughter.)

A little boy went into a grocery store and asked the groceryman how much a pound of sugar cost. "Seven cents," said the man. "How much is half a pound," said the little boy. "Four cents," was the reply. "Give me the other half," he said. (Laughter.) That was his point of view.

It is well known that every man who comes from Chicago claims his city the best on earth. One of these men who had always maintained that Chicago was the greatest city in the universe, took sick and died and passed to the great beyond. There he met another man from Chicago. He looked around for a little while and said, "I would not confess this to anyone else, but this is the first place I have ever been in that beats Chicago. I didn't know Heaven was such a beautiful place." "Stop a minute, my friend," the other fellow replied, "You're not in Heaven." (Laughter.)

The West is very progressive; it has not always been so, at least not every state. About twenty-five years ago the board of regents of a western university decided they would not appropriate any more money to buy books for the library, because, they said, they had not all been read yet. (Laughter.)

A man was traveling from St. Paul to Duluth. He asked how many miles it was from Duluth to St. Paul. The conductor said, "One hundred and sixty-nine miles." "Well, how many miles is it from St. Paul to Duluth?" "Why, you fool, don't you know that it is just the same." "That is not my point of view," said the man, "It's five days from Christmas to New Year's, but it's more than five days from New Year's to Christmas." (Laughter.)

A giant liner was entering the New York harbor. The pilot was on the bridge; he was an Irishman. He said, "I know every rock in this harbor. I have been coming in here for twenty-seven years and I know them all." And just then he struck one. "I know them all," he said, "and that's one of them." (Laughter and applause.)

A farmer went to an artist; he had never been in a studio before and didn't know much about painting. He said to the artist, "I want you to paint a portrait of my father." "All right," the artist said, "That will cost you fifty dollars." "That's all right," the farmer said. "Well, when can your father come?" "My father can't come, my father is dead." "Well, haven't you got a picture of him?" "No, you just paint the picture." Well, the artist was hard put and needed the money and so he said, "All right, come back in a fortnight." So he painted a picture of an old man and in about a fortnight the farmer came back. He said, "Is it ready?" "Yes," said the artist, "but you pay in advance." "All right, here's your fifty." The artist moved the screen and there was the picture. The farmer looked at it a little while and said, "I didn't know my father had aged like that." (Laughter.)

About a year ago in Italy I met a friend of mine, an Italian physician. He said, "I had a peculiar experience this morning, a patient came to me and said, 'I feel very miserable; I think I am suffering from melancholy.'" "That is pretty bad," the physician said, "I will examine you." He examined him all over and said, "You are all right; there is nothing the matter with you, you are simply depressed. I don't want to give you any medicine. I tell you what to do. We have a comic opera here; we have the greatest comic opera singer in this city, his name is Grimaldi. You hear him for two nights and you will laugh and laugh and never think of your melancholy." Said the patient, "That is your point of view; I am Grimaldi himself." (Laughter.)

I don't know whether you know the story of Mark Twain, when he was sea sick, and maybe some of you know it and some of you don't, and so I will tell it anyway. Mr. Clemens was very sea sick and there he was sitting on the deck feeling simply helpless. The doctor said, "Mr. Clemens, what is the matter?" "I am sea sick," he said. "Well, that is nothing," the doctor said.



W. Siwart Smit, St. Paul, Minn.

"I will cure you. Do you drink?" "Sometimes," said Mr. Clemens. "Quit it." "Do you smoke?" "I do," said Mr. Clemens. "Quit it." "Do you swear—well, that doesn't have anything to do with it, anyway." So Mark Twain didn't smoke or drink for two days and he felt splendid, but he was very lonesome. (Laughter.) Well, he was sitting on the deck and he discovered an old lady about sixty-five or seventy years old. He said "Well, madam, how are you today?" "Don't bother me," she said, "I am sea sick." "I'll cure you," he said. "You cure me?" "Certainly, madam. Do you smoke?" "Mr. Clemens, what do you mean? I won't answer such a question." "Do you drink?" "Why, what do you think I am?" "Well, I can't cure you, you are incorrigible." (Laughter.) Another point of view.

Now I think any of these stories illustrate pretty well the point of view, but personal experience sometimes brings it out more pointedly. I want to turn now to the serious side:

We are all absorbed in our work. We bore into our task as a drill bores into the rock. We are busy with our rivalries on one-half-inch scale. We apply the microscope to the street in which we live, magnifying it to the required bulk, and call it our view of life.

Then we go to Pittsburg. We meet many men, hundreds of men engaged in the same work as ourselves, all looking at it from a different angle, from a different point of view, and we begin to realize that after all ours is not the center of the universe.

The ancient Greeks looked at life as a process of education. Their ideal man was the one who saw things as they are, understood their meaning, felt beauty and followed truth. Their dominant idea was the unfolding of reason and the clarifying of the imagination.

Our views are held down closer to the size of the bank account. The one should not exclude the other, neither obscure it. There is room for both.

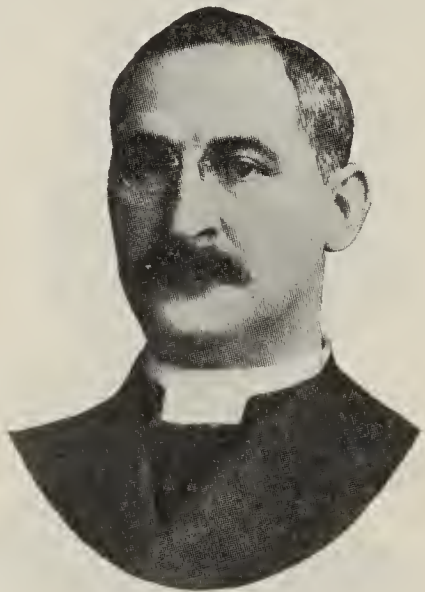
It has been said that from clay to the thoughts of men everything is capable of a perfect form, and that it is a noble aim to try to approach that form. We have chosen the clay, but when we mold that clay, that clay molds us, and through our work we get the post-graduate course in the great school of life.

This world would be an easier one, it is true, if food would grow already cooked, if the right word was not hard to find, if washing was as easy as the advertisements describe it, if clay would not crack in the burning, if toasts could be responded to without trouble, but would it be a better one? After all, it is the obstinacy of things that puts us on our mettle, the grappling with problems to subdue the forces of nature which have made this nation vigorous and strong. And thus a little philosophy will show us the reasonableness of things apparently unreasonable.

Recently some writers have said that the tremendous industrial and commercial development of our country since the Civil War has developed a narrow civilization, has left great domains of human interest uncared for, has produced monotony, has killed individuality.

Sedgewick, in his "New American Type," emphasizes this view as follows: "The old type is disappearing. The variegated surface of the earth has lost its power over us. Ocean, forest, prairie, no longer breed into them the savor of the salt, the sap of the pine, the honey of the clover. We are all nearing a composite type." Beautiful as his language may be, I wish to challenge these views.

There is no lack of individuality in the men gathered here. There was none in the speeches they made, in the papers they read. Year after year the scope of the work of this convention has broadened, till it now touches everything from clay to science, from art to economics. As our business expands, our views expand likewise, and the end is not yet near. As the individual develops, so does the nation. History will repeat itself, and out of the foundation of our material prosperity is slowly being evolved a higher civilization, which may some day give to



Rabbi J. Leonard Levy, Pittsburg, Pa.

the world a new philosophy, a nobler art, a deeper interpretation of life through literature, and poetry in words of charm and beauty.

Some people look at this country as a big department store, others as an immense industrial machine. I like to view it as young, powerful, brilliant, flushed with hope, full of great projects, flinging its tremendous energy into its tasks, which today may be material, tomorrow spiritual, philosophical, intellectual, aesthetic or otherwise. And thus will come true the prediction made many years ago by Lowell, one of our noblest and proudest sons, that this country will produce something more valuable than cotton, wheat or corn, something truer than steel, something more durable than burnt clay—that it will develop "the finest race of gentlemen the world has ever seen." (Applause.)

Toastmaster McCormick:

"'Bricks' will be the subject
Of Rabbi Levy's toast;
Perhaps he'll even take us back
To old Pharaoh's coast,
And tell of wicked brickmen
Who would unjustly thrive—
Citing the book of Exodus,
Verse seven, chapter five."

Rabbi J. Leonard Levy has been sought very earnestly by the metropolis of the world, London, his own native birthplace, and there was a determined effort a little while ago to take him from Pittsburg back to his old home. But Pittsburg persuaded him that it could not do without him and induced him to declare his allegiance to America and to

Pittsburg. There is no man who wields a larger influence in this city than our Rabbi. (Loud applause.)

BRICKS! BRICKS! BRICKS!

BY RABBI J. LEONARD LEVY, PITTSBURG, PA.

Mr. Toastmaster, Ladies and Gentlemen:

It is a very great pleasure to come to you after a very busy day, during which I have had an immense amount of work, and sit here and enjoy this feast of reason and flow of soul. It is a great pleasure to look into so many happy, smiling, beautiful faces, so many intelligent faces, to share a few minutes with you, talking upon a subject of which you know a great deal more than I am ever likely to learn myself. You have heard a great deal about Pittsburg, and you must have learned a great deal about it in the couple of days you have been here. All sorts of names are given to our city. You have heard it referred to as the "Smoky City," and no doubt you saw yesterday for yourselves that it can be smoky when it sees fit. The famous Robert Ingersoll said, as he saw the mills of Homestead burst into flame, that Pittsburg reminded him of hell with the lid off. (Laughter.) This, ladies and gentlemen, is the city of which a wit once said that her men make iron and steel for a living. (Laughter.) Many of our famous Pittsburgers have made us famous all over the world. We are the city of 57 and many other varieties. Three gentlemen were traveling from Pittsburg to New York just before the last general election. They were discussing the possibility of Mr. Taft carrying the State of Pennsylvania. One said Bryan would carry it and the other said sure, "Taft will carry it." Another reverend gentleman broke into the conversation and said, "I assure you that neither Taft nor Bryan will carry the State of Pennsylvania; the Lord will carry the State of Pennsylvania." "Well," said one of the gentlemen, "I assure you He will never carry Pittsburg." (Laughter.)

All sorts of compliments are paid our city; we are the original city of the Lord. We are the only city of which it can be truthfully said that God protects by "a pillar of cloud by day and a pillar of fire by night." (Laughter.)

We bid you a very hearty welcome to this city and trust you will never come to think of it as Robert Ingersoll did of the city of Hoboken. Robert had been billed to deliver an address in the city of Hoboken. Some clergymen had made up their minds that though this is a free country and free speech is granted, Mr. Ingersoll should not be heard in the city of Hoboken. So Mr. Ingersoll made arrangements to speak in Jersey City the next night. He said, "Ladies and gentlemen, you know very well I was excluded from the city of Hoboken last night, and, going to bed thinking about it, I dreamed I was dead; when I realized I was dead I was transported to Heaven. I asked permission of the recording angel to enter the pearly gates. I was told I would not be permitted to come in. The angel said, 'Ingersoll, the arch infidel, the great heretic, can not enter this place, you must try somewhere else. So I went below, and as his Satanic Majesty greeted me he said, 'Bob, what are you doing here; this is not the place for you. You have been a very good husband and father and you have always been a good citizen. If Heaven is not for such a man as that I don't know where you can go. We can't let you stay here. This is the place for ex-bank presidents and the like.' (Laughter.) 'Well,' said Ingersoll, 'look here, my brother, I can't get into Heaven, you won't let me into hell; my God, you don't mean to say that I have to go back to Hoboken?'" (Laughter.)

I hope, ladies and gentlemen, as the years pass by, you will, when you determine to meet again in annual convention, think so kindly of this city that you will unanimously soon determine to hold your convention here again. Allow me to say I feel very much out of place in this presence. It is not my business to talk on brick; I know very little about them. I can not tell one kind of brick from another, except that we put up a church recently; we happened to have Kittanning brick, and I can recommend it as a pretty good one. (Applause.) Evidently Kittanning is well known, so I am reminded of an Irishman who once went to a Jewish Rabbi and asked him if he would grant him permission to be buried in a Jewish cemetery. "I am afraid that will be an exceedingly hard thing to do," said the Rabbi, "I never heard of a Catholic being buried in a Jewish cemetery. I will arrange it for you if I can, but will you kindly tell me why you want to be buried in a Jewish cemetery?" "Oh, Rabbi, you must oblige me," said the Irishman. "Well, why do you wish to be buried in a Jewish cemetery?" "Well, I will tell you the truth, Rabbi, the devil would never think of looking for me there." (Laughter.) Now I do not mean to say, ladies and gentlemen, that if his Satanic Majesty was out on a still hunt for the Rabbi of Pittsburg he would never think of finding me in this region. (Laughter.) But I do mean to say that as a teacher of morals and a preacher of a certain faith, it is rather an unusual experience to find myself talking to those who turn clay into brick and brick into houses, and yet on reflection when I recall the reference to the book of Exodus, referred to by the toastmaster, if any man in Pittsburg has a right to be here, I have the best right to pre-empt that claim, for the first brickmakers were Jews, the first of which we find any recorded history. My fathers were the original brickmakers; they were not up-to-date. They did not have the modern appliances which you have and had not heard of economical systems which you gentlemen no doubt have, but my fathers could do what you could not do—make brick without straw. (Laughter.) I do not know if any brickmakers make brick without straw. Perhaps it is no wonder as a brickmaker or as a descendant of brickmakers I find myself entirely at home in this company. There are many kinds of brick; I do not know

the particular brands and I have not yet been paid to advertise any special one of them—that is left to the next speaker, the advertising man. I speak in glittering generalities, but I know there are many kinds of brick. And that reminds me of the story of an old lady from the country who was traveling with her husband. The train stopped on a siding and facing the window at which the old lady sat was a big factory with a big sign which read, "The Smith Manufacturing Company." The old lady turned and said, "Joshua, I always knew there were a great many Smiths in America, and now I see where they make them." (Laughter.) There is a kind of brick made, the vitrified brick, burned; as I understand it, because, as has been already said, these are to be used for the road along which so many of us will ultimately travel. A clergyman one Sabbath morning arose before his congregation and delivered his text, "The Gates of Hell Shall Not Prevail Against Us." And after having delivered a most eloquent address, he was quite pleased and expected the next morning to find a very glowing account of the address in the paper. You can imagine his amazement when the next morning a great headline stated that "the Rev. So and So preached last night; he spoke from the gates of hell." (Laughter.)

The objection to the clay brick man is that he goes about doing that which he has to do with calm and deliberate intent; there is nothing spiritual about his work, there is nothing high-minded about it, and speaking of not having any spirit about them reminds me of a Sunday-school teacher who was speaking to his boys and girls one hot Sunday. He desired them to sing the song, "Ho! Everyone that Thirsteth, Come to the Water and Drink." "Now, boys and girls, won't you please join in and sing this beautiful song?" It was a hot day, the children were tired and he could not raise the slightest enthusiasm, and again he said, "Boys and girls, come sing, 'Everyone that thirsteth, come and drink of the waters,' and again he said, 'Come, sing that beautiful song, Ho! everyone that thirsteth, come to the waters, and put a little spirit in it.'" (Laughter.)

As has already been told you this evening, I am a foreigner. I am not an American born. I hail from the other side of the herring pond. It has been said to me that I speak very good English. Often foreign people come into my temple and expect to hear a distinctly foreign accent. They say to me you speak a very good English for a foreigner, and when I tell them I hail from London, where my family has been located for nearly 250 years, they are able to account for my good English accent. In England we have a phrase that a man is a regular brick. I do not know whether it is a colloquial phrase or not, but we mean he is a hearty good fellow, and let it be said that most of us in passing through life have struck bricks of this order. The world is a good place to live in. It is like a mirror, when you look into it it looks back to you. If you look into it with a sorry face, you will find all the despair you wish. If you look into it with a bright face, smiling and optimistic, you will find it not such a bad place after all. Not only is it a good place, but it is a place which is constantly growing better. As one of our wise men have said, "Today is better than yesterday and tomorrow will be better than today." I must not attempt to give you all my reasons for this; I will give you a little story and you can fill out the details, and after that you will agree with me that today is better than yesterday and tomorrow is better than today.

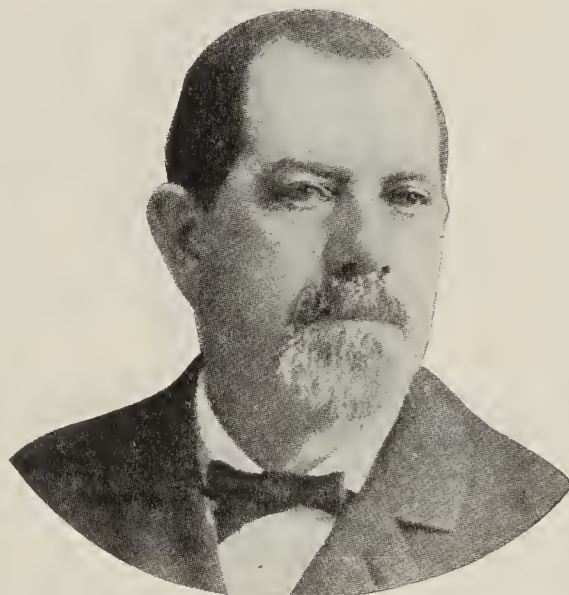
A little boy came to his mother and said a gentleman in the neighborhood had given him a quarter. His mother said, "I hope you said 'thank you,'" and the boy answered not a word. "Tommy, I hope you said 'thank you,'" and Tommy said nothing. "Tommy, if you don't tell me whether you said 'thank you,' I will punish you." Tommy said nothing, whereupon his mother, who was a college-bred woman and was a past master in the gymnastic arts and believed in doing what she said she would do, put him over her knee, wrong side up, and applied her slipper to his tender flesh, and when she had finished she said, "Tommy, will you tell me whether you said 'thank you.'" Tommy timidly looked up at her and said, "Certainly, mother, you ought to know that your son would say 'thank you' for anything given him, but the man said 'don't mention it.'" (Laughter.)

Tonight, ladies and gentlemen, if I were to be permitted to speak on the one great theme of my life, the one which engages my attention more than any other, were I asked to speak on that theme, that today is better than yesterday, and tomorrow will be better than today, you would never come back to Pittsburg, because you would never get away. Therefore, I must not permit myself to go into this theme, because my life has been so rich in friends, my experience has shown me that this world is such a delightful place to live in, if we have learned the rule and law of love. If we only understand that life is not given to us to enjoy alone, but in all our enjoyment we must share with another, then and then only would we understand the supreme law of life expressed by the simple English word, "Give." "Give," for happiness is never found in that which we get, but only in that which we give. And in the ultimate, ladies and gentlemen, we never have anything at the last day but that which we have given to others. If we will bear this in mind and go through life with a smile on our lips and with open hand, each giving according to his ability, we shall find, all of us, that the world is full of these good bricks of human friendship that make life really worth living.

I must pass on to the last kind of a brick, and that is the plain, everyday common clay brick which you are, ladies and gentlemen, and which I am, and which all humanity is, because God made man out of clay. I do not know which particular color the clay was. The colored people say it was blaek clay; the yellow men in China and Japan say that God took original yellow clay. I never heard of white clay, but if there is anything white

about a human being, perhaps it is this human material of which he is constructed, that he may use it during the few years he is given to grow here on earth. Ladies and gentlemen, everyone of us as we make up the common members of humanity, is nothing more nor less than the average piece of clay work and form produced ultimately for the purpose mankind is engaged in building, what I like to call the temple of humanity. I myself like to believe all the universe is ruled by the Great Architect, and to this Great Architect mankind and womankind is nothing except in so far as they serve His great purposes in upbuilding these great things in order to draw to Him all humanity. These are the things which we as civilized beings build to our God, and, so far as you and I know, it is no matter what our color, or creed, or condition, or country, so far as we conform to it and do our part to build that temple of humanity which has been many ages in construction.

The best illustration I have ever been permitted to see with my physical eyes is that beautiful cathedral in the city of Milan, which many of you may have seen. It stands as a prototype of that great temple of humanity in which we are all engaged in building, and to erect which we are all toiling when we are doing the things which are best in man and woman. It stands in the square so beautiful and chased in outline that Napoleon the Great, when he gazed upon it, turned to his guide and said, "Where is the glass case with which you cover this noble cathedral." It is a magnificent specimen of architecture, which stands out resplendent as one of the greatest triumphs of the human mind. It has taken six hundred years to build and is not yet completed. It is of composite architecture and yet the whole theme of the building is that of the pure Gothic type. Its entire top is one mass of turrets and towers. On top of these towers stand the figures of the saints and holy men and women who are dear and near to the heart of the Roman Catholic Church. You wander over the wonderful cathedral, you are taken over what is called the vegetable garden, each of its spires surmounted by a small roof, each roof ends in a series of ornaments, each ornament



Victor Cushwa, Williamsport, Md.

represents a vegetable. It is said there are over 20,000 of these spires, points and towers, and over a thousand human figures, no two of them exactly alike. You enter the beautiful cathedral, you are impressed with its vastness and the magnificence of its lines. This cathedral of Milan, that temple of humanity in which we are all engaged in building, this structure, made with human hands, is only a prototype of that wondrous temple that the soul of man and the heart of man will work out of the common clay of ordinary humanity. I can see it with my eyes this moment, there it stands, each brick in its wall, a man and woman, the girders which bind it side by side represent the servants of faithful service. The towers and turrets which arise from its roof are surmounted by figures of servants of humanity. Here upon the loveliest turret is the master Moses, and here upon an equally lovely turret may be seen the figure of Jesus of Nazareth, with hands outstretched in blessing; yonder is Socrates, the old master of philosophy, and here Plato, the teacher of idealism. Yonder is Marcus Aurelius, the lonely philosopher of Rome, and here the leader Cato, and coming on down the ages we see these figures of men, the early Christians, who suffered for conviction's sake, until we come within our own age, and we see there the man with his pure brow, as chaste as steel, George Washington, the father of our country, and here we find the man whose tragic face speaks of trouble, in the one hand the declaration of human emancipation, in the other hand the broken chains which he had struck from the man in slavery—our own Abraham Lincoln. So, ladies and gentlemen, it is this work we are to build out of clay, out of common bricks of human life. It is this spirit that is to be infused into it. In our day, in our childrens' day, in our childrens' childrens' day, that temple not made with hands, but made of the human spirit which shall come into being, built by these BRICKS! BRICKS!! BRICKS!!! (Prolonged applause.)

Toastmaster McCormick: You will observe that there was no trace of exaggeration in what I said in introducing Dr. Levey. We are pressed for time and without any further

remarks I shall introduce the last speaker of the evening, Robert Frothingham, of New York City, one of the editors of Everybody's, of which everybody knows and reads:

"With confidence we now present
The dauntless one, who has a plan,
One who the field will boldly scan,
To whose broad views all give assent—
Behold, the Advertising Man!

"THE ADVERTISING MAN."

BY ROBERT FROTHINGHAM, NEW YORK CITY.

Mr. Toastmaster, Ladies and Gentlemen—I can't imagine what your genial Secretary had in mind when he invited me to respond to the toast, "The Advertising Man," without informing me that there were to be ladies present, but I can assure you I am more than delighted to see the ladies here, for they afford a pat illustration of the subject assigned me. I lambasted the members of this organization this afternoon so hard that they can scarcely care to hear from me again, but, looking around this audience, I wonder if any of you can be so slow and stupid when it comes to advertising, for certainly, judging by the appearance of the ladies we have with us tonight, the women of the family are not blind to the advantages of advertising. If you may think they are you fool yourself. Why, bless your hearts, where do you suppose they got their ideas for all these pretty gowns, for the latest fashions for hair dressing, etc. Where could they get them but from the advertising pages of the magazines? (Applause.)

Toastmaster McCormick: I have observed, ladies and gentlemen, that this organization is apparently one of the



Robert Frothingham, New York, N. Y.

most effective ones I have ever come in touch with, and in trying to ascertain just how it comes that everything moves with such precision, things go along so effectively, my eye has been turned to one very efficient officer of this Association, and while he is not the whole thing, so far as I can see, he comes about as near to it as any one man can in such a large organization as this. I believe it is the custom that you should hear from this man on this occasion, and I therefore have great pleasure in introducing to you Mr. John W. Sibley, Treasurer of this organization. (Laughter and applause.)

TREASURER SIBLEY'S STORIES.

Mr. Toastmaster, Ladies and Gentlemen:

At this late hour of the morning, I feel that it is hardly appropriate for even a "goat" to "butt in," and it is quite evident that the Secretary has put up a job with the Toastmaster to make me the goat. Women have been known to refer to their husbands as jewels, but some of the ladies here know some husbands who are rhinestones. It is a good thing that brick-makers' wives generally consider their husbands pretty fine brick. If one particular lady could have seen her husband at the smoker last night she would have realized that he is a pretty hard brick. Without intending to be in the least personal, I want to relate an incident that happened last night before the smoker. Before leaving home Grant Dibert's good wife said to him, "I suppose you are going to another one of those brick smokers, and that you will scarcely be able to tell the number of the house when you get back." "Oh, yes I will," said Grant, "I unscrewed the number from the door and have it in my pocket." (Laughter.)

It seems whenever I am called on you all expect me to tell a darkey story, so here goes: Two negro boys had stolen a bag of walnuts and as they were making off with them they came to

a cemetery, and as they were crawling over the fence the bag came untied and the walnuts rolled out on the ground. Hearing someone approaching, they hid in the grass by the fence, and when things were still they began to divide the nuts. It happened that a colored deacon was going home from a negro revival meeting not far away, and as he was passing he heard voices coming from the cemetery, "You take these two, I'll take the next two." He made tracks back to the church, where he found the parson, and said to him excitedly, "Brother Jones, dar's somethin' doin' at the cemetery, I don't hear the Lord and the debbil down there dividin' souls." The minister said, "Deacon, have you been drinking?" and the deacon replied, "Deed I haint, come hear for yourself." So they hurried back to the cemetery wall, where the boys were still busy, and they both heard a voice distinctly say, "You take these two, and I'll take the two the other side the fence." Needless to say, Mr. Parson and Mr. Deacon lost no time hot-footing it away from there. (Laughter.)

I know I voice the sentiments of all the visiting brothers and fair sisters here at this convention in expressing the deepest appreciation for the magnificent entertainment afforded us. The flow of reason and wit are indeed a rare treat, and I am glad of this opportunity to make special complimentary mention of the Messrs. Sankey, Martin, Riffle, Cappel, Adams, Dibert and others who have made our stay in Pittsburg so pleasant, and I might keep on indefinitely, telling them of the feeling in our hearts, but if I trespass upon your attention too long, you may be in the frame of mind of the old man whose wife sent him with the pitcher to get some milk. He tripped on the stairs and fell to the bottom with such casual interruptions as the various landings afforded. While pulling himself together he heard the dulcet voice of his wife, calling from above, "John, did you break that pitcher?" "No," said John, "I didn't, but I'll be dinged if I don't," and he angrily smashed it to smithereens. (Laughter and applause.)

Toastmaster McCormick: I think I know how you feel toward your Secretary, and while he tried to escape by getting me to call on Treasurer Sibley, I am sure you want to hear from Mr. Randall, so I will call on him after all. (Laughter and applause.)

SECRETARY RANDALL'S RESPONSE.

Mr. Toastmaster, Ladies and Gentlemen:

This illustrates the truth of the old saying, "The best laid plans of mice and men gang aft agley." I thought my scheme to sidestep in favor of Mr. Sibley was going to work very nicely, but the toastmaster wills otherwise. There has been a lot of scriptural references here tonight and I am reminded of the expression of a little boy who wanted to go to a Sunday baseball game, but was compelled by his mother to go to Sunday school instead. You know Sunday baseball was permitted in Indianapolis last summer for the first time. This particular little boy was very anxious to see the first Sunday game, and begged his mother for permission to go. It was not granted, and he reluctantly went to Sunday school as usual. On returning home his mother said, "Now, Willie, you have been a good boy and you feel a whole lot better, don't you?" and Willie replied, "Oh, I don't know, I don't see that there is much difference between baseball and Sunday school. In Sunday school they sing, 'Stand Up, Stand Up, for Jesus,' and at the baseball game they yell, 'For Christ's sake, sit down.'" (Laughter.) I am not going to give you a chance to tell me to sit down, but I will say just a word about this splendid gathering. You can see in this magnificent audience and the delightful evening we have spent here why the national association continues to grow. It is a good thing we are giving a subscription banquet, for, with the immense attendance, we could not possibly have accommodated every one who would have attended under the old plan. As you see, the capacity of this immense room is taxed as it is. The one thing that is worrying me now is where are we going to get some such accommodations a year hence. However, we said the same thing a year ago at Rochester. We are certainly under everlasting obligations to Pittsburg and I can not begin to thank our friends here on the left and on the right for the delightful entertainment they have afforded. When we leave Pittsburg it will be with hearts full of gratitude to you, Mr. Toastmaster, and you good people who have shown us such a good time. We have enjoyed ourselves so much that we will want to come to Pittsburg again, so, as the song goes, "Keep a cozy corner in your hearts" for us. (Applause.)

Toastmaster McCormick: The hour has come when we must adjourn, as much as we would love to linger. I have enjoyed the evening immensely and some other time when it is not so early in the morning, I hope to deliver the talk on "Co-Operation." (Laughter.) I will now close by reading the verse prepared for my toast, and which is a fitting final word for this great organization, which, in itself, exemplifies the benefits of "Co-Operation:"

"The Chancellor presents a word
Of Latin derivation:
Its polysyllables, when heard,
Express 'Co-Operation;'
In current speech, it goes to teach,
In ev'ry sort of weather,
To win in full, that we must pull—
Pull strong and all together."
(Applause.)

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 D. V. Purington (1887) Chicago, Ill.
 Robt. Speed (1888) Memphis, Tenn.
 T. B. McAvoy (1888-89) Philadelphia, Pa.
 Anthony Ittner (1893) St. Louis, Mo.
 Wm. Flinn (1898) Pittsburg, Pa.
 W. D. Richardson (1889) Columbus, Ohio.
 Wm. D. Gates (1900) Chicago, Ill.
 W. H. Hunt (1901) Cleveland, Ohio.
 George M. Fiske (1902) Boston, Mass.
 R. G. Eisenhart, 1903) Horseheads, N. Y.
 W. S. Purington (1904) Galesburg, Ill.
 J. M. Blair (1905) Cincinnati, Ohio.
 J. R. Copeland (1906) Birmingham, Ala.
 Wm. Conway (1907) Philadelphia, Pa.
 M. E. Gregory (1908) Corning, N. Y.
 Lemon Parker (1909) St. Louis, Mo.

*J. C. Adams (1890-91) Indianapolis, Ind.
 *W. H. Alsip (1894) Chicago, Ill.
 *W. H. Brush (1897) Buffalo, N. Y.
 *C. P. Merwin (1888-93) Berlin, Conn.
 *R. B. Morrison (1896) Rome, Ga.
 *Deceased.

Committee on Technical Investigation.

Prof. Ross C. Purdy, Columbus, Ohio. (Permanent Secretary.)
 D. V. Purington, Chicago, Ill. (Term expires 1914.)
 Prof. Edward Orton, Jr., Columbus, Ohio. (Term expires 1913.)
 W. D. Richardson, Columbus, Ohio. (Term expires 1912.)
 Anthony Ittner, St. Louis, Mo. (Term expires 1911.)

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TEXAS.

J. M. Harry.....Dallas

VIRGINIA.

J. W. Davis.....Newport News

WISCONSIN.

George J. Schwarz.....Milwaukee

Membership Roster.

J. R. Copeland.....Birmingham, Ala.

Graves Shale Paving Brick Co.....

.....Birmingham, Ala.

J. W. Sibley.....Birmingham, Ala.

L. L. Stephenson.....Birmingham, Ala.

C. J. Sudduth.....Opelika, Ala.

A. G. Kahn.....Selma, Ala.

W. L. Sibley.....Warrior, Ala.

Jenkins Brick Co.....Montgomery, Ala.

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Los Angeles Pressed Brick Co.....

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P. McG. McBean.....San Francisco, Cal.

John B. Millar.....Vancouver, B. C., Can.

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The Hamilton & Toronto Sewer Pipe

Co., Ltd.....Hamilton, Ont., Can.

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J. S. McCannell.....Milton, Ont., Can.

J. W. Ball.....Mimico, Ont., Can.

Wm. Burgess.....Toronto, Ont., Can.

Joseph Russell.....Toronto, Ont., Can.

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B. E. Bechtel.....Waterloo, Ont., Can.

Eastern Township Brick Mfg. Co.....

.....Lennoxville, P. Q., Can.

R. G. Loomis & Sons.....Sherbrooke, Que., Can.

W. C. Trotter.....St. John, P. Q., Can.

J. S. McLennan.....Petersfield, Sydney, Can.

James Knox.....Argo, Colo.

Denver Pressed Brick Co.....Denver, Colo.

William Geddis.....Denver, Colo.

James McNeen.....La Junta, Colo.

F. J. Helwig.....Pueblo, Colo.

Victor C. Vance.....Pueblo, Colo.

J. H. Connley.....Berlin, Conn.

Park Brick Co.....Hartford, Conn.

G. D. Rankin.....Hartford, Conn.

R. Clifford Merwin.....New Britain, Conn.

Virgil M. Palmer.....New Britain, Conn.

Eastern Machinery Co.....New Haven, Conn.

J. Wheaton Stone.....New Haven, Conn.

The Stiles & Hart Brick Co.....

.....North Haven, Conn.

The I. L. Stiles & Son Brick Co.....

.....North Haven, Conn.

F. H. Young.....Wilson, Conn.

Delaware Terra Cotta Co.....Wilmington, Del.

Jas. B. Oberly.....Wilmington, Del.

Thomas Hampton.....Washington, D. C.

A. B. Lyon.....Washington, D. C.

Jefferson Middleton.....Washington, D. C.

E. S. Morse.....Washington, D. C.

West Bros.' Brick Co.....Washington, D. C.

The Atlanta Terra Cotta Co.....Atlanta, Ga.

Chattahoochee Brick Co.....Atlanta, Ga.

Lincoln S. Morrison.....Atlanta, Ga.

Georgia Vitrified Brick and Clay Co.

.....Augusta, Ga.

John C. Hagler.....Augusta, Ga.

J. L. Hankinson.....Augusta, Ga.

Chas. F. McKenzie.....Augusta, Ga.

John H. McKenzie.....Augusta, Ga.

Howard H. Stafford.....Augusta, Ga.

Geo. O. Berry.....Columbus, Ga.

W. E. Dunwody.....Macon, Ga.

J. W. McMillan.....Milledgeville, Ga.

J. Hart Sibley.....Union Point, Ga.

Alton Brick Co.....Alton, Ill.

S. H. Alsip.....Belleville, Ill.

The Belleville Brick Co.....Belleville, Ill.

Warren Wayne Ittner.....Belleville, Ill.

O. W. Dunlap.....Bloomington, Ill.

W. H. Swett.....Blue Island, Ill.

J. L. Hull.....Cambridge, Ill.

W. F. Gerhardt.....Carbon Cliff, Ill.

J. W. Stipes.....Champaign, Ill.

George J. Walters.....Chatsworth, Ill.

R. D. Aitchinson.....Chicago, Ill.

L. D. Binyon.....Chicago, Ill.

Charles Bonner.....Chicago, Ill.

Edw. K. Cormack.....Chicago, Ill.

J. W. Cullen.....Chicago, Ill.

H. J. Flood.....Chicago, Ill.

E. R. Frazier.....Chicago, Ill.

W. D. Gates.....Chicago, Ill.

J. H. Gray.....Chicago, Ill.

Harrington & King Perf. Co.....Chicago, Ill.

George H. Hartwell.....Chicago, Ill.

C. D. B. Howell.....Chicago, Ill.

The Jenkins & Reynolds Co.....Chicago, Ill.

A. J. Kautz.....Chicago, Ill.

Kenfield-Leach Co.....Chicago, Ill.

E. C. Kimbell.....Chicago, Ill.

Frank Lambert.....Chicago, Ill.

Herman L. Matz.....Chicago, Ill.

W. H. McCarthy.....Chicago, Ill.

Benj. M. Mitchell.....Chicago, Ill.

John J. Moroney.....Chicago, Ill.

Thos. Moulding.....Chicago, Ill.

National Brick Co.....Chicago, Ill.

Chas. B. Ver Nooy.....Chicago, Ill.

D. V. Purington.....Chicago, Ill.

Chas. S. Reed.....Chicago, Ill.

L. E. Rodgers.....Chicago, Ill.

H. S. Simpson.....Chicago, Ill.

F. S. Thompson.....Chicago, Ill.

F. Wagner.....Chicago, Ill.

Stolp & Wiederhold.....Chicago Heights, Ill.

Frank W. Butterworth.....Danville, Ill.

Wm. H. Neff.....Danville, Ill.

Wm. P. Whitney.....Danville, Ill.

D. C. Heager.....Elgin, Ill.

Ben H. Richards.....Edwardsville, Ill.

Frost Manufacturing Co.....Galesburg, Ill.

F. G. Matteson.....Galesburg, Ill.

W. S. Purington.....Galesburg, Ill.

E. L. Swett.....Galesburg, Ill.

Martin Halpin.....Greenville, Ill.

Richard G. Hoffman.....LaGrange, Ill.

La Salle Pressed Brick Co.....La Salle, Ill.

William Hammerschmidt.....Lombard, Ill.

A. W. Gates.....Monmouth, Ill.

A. Veiock.....Monmouth, Ill.

Jansen & Zoeller.....Pekin, Ill.

F. R. Carter.....Peoria, Ill.

John T. Hummert.....Quincy, Ill.

Clifford Chase.....Russell, Ill.

F. O. Corbin.....Sheffield, Ill.

Underwood Pressed Brick Co.....Springfield, Ill.

C. C. Barr.....Streator, Ill.

C. A. Miller.....Streator, Ill.

Samuel Anderson.....Taylorville, Ill.

Robert Twells.....Walnut Hills, Ill.

G. C. Stoll.....Wheaton, Ill.

Anderson Foundry & Machine Works.....

.....Anderson, Ind.

C. W. Crawford.....Brazil, Ind.

Chas. W. Flagg.....Brazil, Ind.
 T. S. Rouse.....Brazil, Ind.
 Douglas F. Stevens.....Cayuga, Ind.
 J. W. Robb.....Clinton, Ind.
 Geo. M. Krick.....Decatur, Ind.
 W. J. Loyd.....Dunkirk, Ind.
 John C. Boss.....Elkhart, Ind.
 H. C. Kleymeyer.....Evansville, Ind.
 A. A. McClamrock.....Frankfort, Ind.
 Adams Brick Co.....Indianapolis, Ind.
 D. F. Billingsley.....Indianapolis, Ind.
 Marion Blair.....Indianapolis, Ind.
 Will P. Blair.....Indianapolis, Ind.
 Robert Elliott.....Indianapolis, Ind.
 Ed Gerard.....Indianapolis, Ind.
 Jas. W. Hensley.....Indianapolis, Ind.
 Indianapolis Terra Cotta Co.....
 Indianapolis, Ind.
 J. G. Jones.....Indianapolis, Ind.
 Marion Brick Works.....Indianapolis, Ind.
 C. & A. Potts & Co.....Indianapolis, Ind.
 James E. Randall.....Indianapolis, Ind.
 Theo. A. Randall.....Indianapolis, Ind.
 W. W. Winslow.....Indianapolis, Ind.
 Jake A. Behrick.....Mt. Vernon, Ind.
 Chas. H. Read.....Oakland City, Ind.
 Fred Baum.....Orchestes, Ind.
 G. S. Brubaker.....Peru, Ind.
 Madden & Co.....Rushville, Ind.
 E. A. Morse.....South Bend, Ind.
 J. A. Dailey.....Terre Haute, Ind.
 J. M. Hoskins.....Terre Haute, Ind.
 C. W. Hoff.....Terre Haute, Ind.
 R. D. Culver.....Veederburg, Ind.
 H. R. Straight.....Adel, Iowa.
 J. L. Stevens.....Boone, Iowa.
 W. L. McKissick.....Carlisle, Ia.
 R. W. Besley.....Council Bluffs, Ia.
 E. A. Wickham.....Council Bluffs, Ia.
 Eagle Iron Works.....Des Moines, Ia.
 Flint Brick and Coal Co.....Des Moines, Ia.
 H. A. Rawson.....Des Moines, Iowa.
 T. J. Neiswanger.....Harvey, Iowa.
 S. K. Leacox.....Keota, Ia.
 D. F. Morey.....Ottumwa, Ia.
 C. J. Holman.....Sergeant Bluff, Ia.
 G. N. Fairchild.....Sioux City, Ia.
 Tom W. Green.....Sioux City, Ia.
 Paul Beer.....South Des Moines, Ia.
 Claude E. Fuller.....Buffalo, Kan.
 H. J. Huinskamp, Jr.....Buffalo, Kan.
 Wm. H. Francis.....Cherryvale, Kan.
 W. G. Buckles.....Coffeyville, Kan.
 E. R. Dick.....Coffeyville, Kan.
 J. J. Amos.....Humboldt, Kan.
 Charles Francis.....Independence, Kan.
 L. L. Ponsler.....Iola, Kan.
 B. W. Ballou.....Neodesha, Kan.
 Willis Edson.....Topeka, Kan.
 E. R. Dillehay.....Danville, Ky.
 G. S. Firebrick.....Firebrick, Ky.
 Kleymeyer & Klutey Brick and Tile Co.....
 Henderson Ky.
 Geo. E. Derry.....Lexington, Ky.
 X. B. Wickersham.....Mayfield, Ky.
 A. C. Sphar.....Maysville, Ky.
 H. W. Katterjohn.....Paducah, Ky.
 C. N. Adams.....Alexandria, La.
 Chas. Willis Roy.....Lafayette, La.
 J. R. Randolph.....Ruston, La.
 F. Salmen.....Slidell, La.
 Baltimore Brick Co.....Baltimore, Md.
 S. R. Busey.....Baltimore, Md.
 Charles H. Claiborne.....Baltimore, Md.
 Independent Brick Co.....Baltimore, Md.
 Jacob Klein.....Baltimore, Md.
 Albert J. Link.....Baltimore, Md.
 Louis N. Rancke.....Baltimore, Md.
 Slingluff Supply Co.....Baltimore, Md.
 Westport Paving Brick Co.....Baltimore, Md.
 T. H. Mitchell.....Salisbury, Md.
 Glen Perdue.....Salisbury, Md.
 N. S. Lewis & Son.....Snow Hill, Md.
 Victor Cushwa & Sons.....Williamsport, Md.
 J. A. Dolben.....Boston, Mass.
 Edward D. Emerson.....Boston, Mass.
 Geo. M. Fiske.....Boston, Mass.
 John W. Hahn.....Boston, Mass.

Parry Brick Co.....Boston, Mass.
 Rogers & Manson.....Boston, Mass.
 Spiers-Fish Brick Co., The.....Boston, Mass.
 A. J. Wellington.....Boston, Mass.
 F. L. Wright.....Boston, Mass.
 Ernest S. Yates.....Boston, Mass.
 Wm. Bassett.....Bridgewater, Mass.
 E. L. Cook.....Bridgewater, Mass.
 William Mahanna.....Lenox, Mass.
 W. G. Cady.....North Adams, Mass.
 W. A. Bailey.....Northampton, Mass.
 T. D. Potter.....Springfield, Mass.
 R. A. Bailey.....Springfield, Mass.
 B. C. Pierce.....Taunton, Mass.
 Michigan Vit. Brick Co.....Bay City, Mich.
 J. J. Miller.....Benton Harbor, Mich.
 G. H. Atherton.....Boyne City, Mich.
 Thos. Oliff.....Clio, Mich.
 D. Diver.....Deerfield, Mich.
 American Blower Co.....Detroit, Mich.
 Hubert A. Andreson.....Detroit, Mich.
 George H. Clippert & Bro.....Detroit, Mich.
 John S. Haggerty.....Detroit, Mich.
 Morehead Mfg. Co.....Detroit, Mich.
 Thomas Bros. Co.....Detroit, Mich.
 Edward H. Vitaluis.....Detroit, Mich.
 W. W. Wallace.....Detroit, Mich.
 E. R. Tyler.....East Saugatuck, Mich.
 J. F. Lewis.....Jackson, Mich.
 H. E. Morehouse.....Jackson, Mich.
 American Sandstone Machinery Co.....
 Saginaw, Mich.
 R. L. Jones.....Saginaw, Mich.
 Saginaw Paving Brick Co.....Saginaw, Mich.
 H. Brewer & Co.....Tecumseh, Mich.
 Davis Brown.....Tecumseh, Mich.
 A. H. Finnegan.....Vulcan, Mich.
 Zeeland Brick Co.....Zeeland, Mich.
 H. H. Farnham.....Brickton, Minn.
 F. J. Nixon.....Duluth, Minn.
 Ira C. Jones.....Minneapolis, Minn.
 A. C. Ochs.....Springfield, Minn.
 Fritz Koch.....St. Paul, Minn.
 Matthews Gravity Carrier Co.....
 St. Paul, Minn.
 W. Siwart Smit.....St. Paul, Minn.
 J. E. Meek.....Chillicothe, Mo.
 C. E. Miller.....Festus, Mo.
 Walter S. Dickey.....Kansas City, Mo.
 Robert Nesch.....Kansas City, Mo.
 O. W. Renkert.....Moberly, Mo.
 Carroll Connett.....St. Joseph, Mo.
 American Pulverizer Co.....St. Louis, Mo.
 A. C. Boughton.....St. Louis, Mo.
 John Dell.....St. Louis, Mo.
 Evens & Howard.....St. Louis, Mo.
 Fernholtz Brick Machine Co.....
 St. Louis, Mo.
 R. F. Grady.....St. Louis, Mo.
 W. P. Grath.....St. Louis, Mo.
 Otto Hensel.....St. Louis, Mo.
 E. L. Hess.....St. Louis, Mo.
 Hydraulic Press Brick Co.....St. Louis, Mo.
 Anthony Ittner.....St. Louis, Mo.
 H. A. Johann.....St. Louis, Mo.
 Julius J. Koch.....St. Louis, Mo.
 Laclede-Christy Clay Products Co.....
 St. Louis, Mo.
 United States Engineering Co.....
 St. Louis, Mo.
 S. Mitchell.....St. Louis, Mo.
 Otto C. Oehler.....St. Louis, Mo.
 Lemon Parker.....St. Louis, Mo.
 W. F. Scott.....St. Louis, Mo.
 J. Stocke.....St. Louis, Mo.
 Mississippi Glass Co.....St. Louis, Mo.
 H. A. Wheeler.....St. Louis, Mo.
 J. M. Williams.....St. Louis, Mo.
 M. F. Williams.....St. Louis, Mo.
 J. E. Mecusker.....Sedalia, Mo.
 Versailles Fire Brick & Clay Mfg. Co.....
 Versailles, Mo.
 J. T. Gunniss.....Anaconda, Mont.
 J. G. Hammer.....Butte, Mont.
 Charles H. Bray.....Helena, Mont.
 J. W. Turner.....Burnham, Neb.
 A. Koehler Co.....Geneva, Neb.
 C. B. Hutton.....Hastings, Neb.
 J. Fred Smith.....Omaha, Neb.
 Sunderland Bros. Co.....Omaha, Neb.
 Hubert Somers.....Atlantic City, N. J.
 Elton Braddock.....Bakersville, N. J.
 C. A. Bloomfield.....Metuchen, N. J.
 Cullen W. Parmelec.....New Brunswick, N. J.
 W. W. Blanchard.....Newark, N. J.

A. S. Reid.....Newark, N. J.
 Abel Hansen.....Perth Amboy, N. J.
 Otto W. Will.....Perth Amboy, N. J.
 C. W. Williams.....Raton, N. Mex.
 Charles F. Binns.....Alfred, N. Y.
 Edwin Brockway.....Brockway, N. Y.
 Clarence Cooper.....Brooklyn, N. Y.
 F. J. Nash.....Brooklyn, N. Y.
 J. H. Black.....Buffalo, N. Y.
 Henry Bender.....Buffalo, N. Y.
 J. L. Cooper.....Buffalo, N. Y.
 N. A. Finch.....Buffalo, N. Y.
 George L. Schmidt.....Buffalo, N. Y.
 George W. Schmidt.....Buffalo, N. Y.
 John E. Schuesler.....Buffalo, N. Y.
 V. H. Whitney.....Buffalo, N. Y.
 Hervey Haigh.....Catskill, N. Y.
 Lambert Haigh.....Catskill, N. Y.
 Martin Relyea.....Cohoes, N. Y.
 M. E. Gregory.....Corning, N. Y.
 Tobias Figie.....DeWitt, N. Y.
 Walter E. Hilton.....Dunkirk, N. Y.
 Clarence P. Hendricks.....E. Kingston, N. Y.
 Joseph L. Cite.....Fishkill-on-Hudson, N. Y.
 W. G. Dove.....Geneva, N. Y.
 D. P. De Long.....Glens Falls, N. Y.
 D. H. Foster.....Gowanda, N. Y.
 Frank E. Wiles.....Grassy Point, N. Y.
 John E. Lynch.....Haverstraw, N. Y.
 Matthew Gormley.....Haverstraw, N. Y.
 John Peck.....Haverstraw, N. Y.
 H. C. Preston.....Hornell, N. Y.
 R. G. Eisenhart.....Horseheads, N. Y.
 Levi Marshall, Jr.....Horseheads, N. Y.
 John Mahoney.....Jamestown, N. Y.
 Henry B. Loveland.....Jewettville, N. Y.
 George H. Morton.....Jewettville, N. Y.
 Albert Terry.....Kingston, N. Y.
 Good Roads Machinery Co.....Marathon, N. Y.
 M. M. Hayden.....Newburg, N. Y.
 Hiram H. Walsh.....Newburg, N. Y.
 American Process Co.....New York, N. Y.
 Andrew A. Ayres.....New York, N. Y.
 William C. Black.....New York, N. Y.
 J. Frances Booream.....New York, N. Y.
 Ed H. Callaway.....New York, N. Y.
 Frederick W. Donahoe.....New York, N. Y.
 J. Parker B. Fiske.....New York, N. Y.
 Fredenburg & Loundsbury.....New York, N. Y.
 M. Gabriel.....New York, N. Y.
 E. M. Houghtaling.....New York, N. Y.
 Arthur Koppel.....New York, N. Y.
 H. Jerome Lee.....New York, N. Y.
 Robert Main.....New York, N. Y.
 Werner Malsel.....New York, N. Y.
 Robt. C. Martin.....New York, N. Y.
 Ohio Mining & Mfg. Co.....New York, N. Y.
 R. C. Penfield.....New York, N. Y.
 Orin D. Person.....New York, N. Y.
 Pfotenbauer Nesbit Co.....New York, N. Y.
 D. S. Plummer.....New York, N. Y.
 J. A. Ridgway.....New York, N. Y.
 H. J. Roth.....New York, N. Y.
 Alex. A. Scott.....New York, N. Y.
 G. E. Sly.....New York, N. Y.
 W. A. Underhill Brick Co.....New York, N. Y.
 Ernst Wiener.....New York, N. Y.
 Henry Hasbrouck.....Olean, N. Y.
 F. E. Tyler.....Olean, N. Y.
 S. C. Brush.....Orchard Park, N. Y.
 T. W. Coughlin.....Rochester, N. Y.
 R. W. Holden.....Rochester, N. Y.
 New York Press Brick Co.....Rochester, N. Y.
 W. H. H. Rogers.....Rochester, N. Y.
 Valentine F. Whitmore.....Rochester, N. Y.
 W. W. Parry.....Rome, N. Y.
 John B. Rose.....Roseton, N. Y.
 Philip Goldrick.....Saugerties, N. Y.
 John T. Washburn, Jr.....Saugerties, N. Y.
 Thomas Kieran.....Stapleton, N. Y.
 Christopher Steadman Greenridge.....
 S. I., New York
 James L. Breed.....Syracuse, N. Y.
 William Cannon, Jr.....Syracuse, N. Y.
 C. H. Merrick.....Syracuse, N. Y.
 J. Frank Plumb.....Syracuse, N. Y.
 National Roofing Co.....Tonawanda, N. Y.
 A. R. Campbell.....Tottenville, S. I., N. Y.
 Geo. T. Weaver.....Utica, N. Y.
 James B. Crowell & Son.....Walkill, N. Y.
 G. B. Mentz.....Walkill, N. Y.
 J. H. Mead.....Warner, N. Y.
 Fred S. Nargl.....Warner, N. Y.
 D. S. Hildebrand.....Asheville, N. C.
 J. E. Carson.....Charlotte, N. C.
 R. A. Brown's Sons.....Concord, N. C.
 F. G. Thompson.....Elizabeth City, N. C.
 E. A. Poe.....Fayetteville, N. C.
 F. P. Marshall.....Greensboro, N. C.
 Harold Copping.....Hillsboro, N. C.
 W. E. Jeffrey.....Rocky Mt., N. C.

J. C. Steele & Son.....	Statesville, N. C.	Portsmouth Brick and Tile Co.....	Portsmouth, O.	Harbison-Walker Refractories Co.....	Pittsburg, Pa.
Oscar Wilson.....	Donnybrook, N. D.	.....	Portsmouth, O.	.....	Pittsburg, Pa.
Red River Valley Brick Co.....	Grand Forks, N. D.	A. J. Darbyshire.....	Sabina, O.	Houston Brothers & Co.....	Pittsburg, Pa.
.....	.....	S. M. Gould.....	Shawnee, O.	Evans Jones.....	Pittsburg, Pa.
P. J. Fish.....	Akron, O.	Paul P. Elliott.....	Seville, O.	Kittanning Brick & Fire Clay Co.....	Pittsburg, Pa.
McCausland Bros.....	Akron, O.	Shepfer & Moomaw Bros.....	Sugar Creek, O.	.....	Pittsburg, Pa.
Robinson Clay Products Co.....	Akron, O.	W. A. Howell.....	Toledo, O.	R. R. Lambert & Co.....	Pittsburg, Pa.
Alliance Brick Co.....	Alliance, O.	A. R. Kuhlman.....	Toledo, O.	Chas. B. Lawton.....	Pittsburg, Pa.
Alliance Clay Product Co.....	Alliance, O.	W. S. Russell.....	Toledo, O.	J. D. McIwain.....	Pittsburg, Pa.
W. R. Cunningham.....	Bucyrus, O.	The Trimble Brick Mfg. Co.....	Trimble, O.	H. E. McLain.....	Pittsburg, Pa.
F. L. Hopley.....	Bucyrus, O.	Ben S. Fisher.....	Union Furnace, O.	L. Mendenhall.....	Pittsburg, Pa.
R. O. Perrott.....	Bucyrus, O.	R. E. Whitacre.....	Waynesburg, O.	National Fire Proofing Co.....	Pittsburg, Pa.
C. B. Sharer.....	Bucyrus, O.	F. W. Bennett.....	Wellington, O.	Ohio Valley Brick Co.....	Pittsburg, Pa.
The Bonnot Co.....	Canton, O.	C. G. Stevenson.....	Wellsville, O.	Phillips & McLaren.....	Pittsburg, Pa.
Canton Pressed Brick Co.....	Canton, O.	The Cleveland Car Co.....	.....	Pittsburg Clay Product Co.....	Pittsburg, Pa.
Metropolitan Paving Brick Co.....	Canton, O.	.....	West Park P. O., O.	H. T. Porter, Jr.....	Pittsburg, Pa.
A. A. Oldham.....	Canton, O.	H. B. Crum.....	Willoughby, O.	D. T. Riffle.....	Pittsburg, Pa.
Geo. E. Anders.....	Cincinnati, O.	L. W. Penfield.....	Willoughby, O.	Sankey Bros.....	Pittsburg, Pa.
J. M. Blair.....	Cincinnati, O.	W. R. Barnhart, Jr.....	Wooster, O.	Hamilton Stewart.....	Pittsburg, Pa.
W. A. Eudaly.....	Cincinnati, O.	C. C. Blair.....	Youngstown, O.	Van Port Brick Co.....	Pittsburg, Pa.
Pursell & Grand.....	Cincinnati, O.	Charles M. Crook.....	Youngstown, O.	J. H. Ward & Sons Co.....	Pittsburg, Pa.
J. B. Stanwood.....	Cincinnati, O.	R. C. Burton.....	Zanesville, O.	James H. Welch.....	Pittsburg, Pa.
Suer & Bros.....	Cincinnati, O.	R. H. Rutherford.....	Zanesville, O.	E. S. Fox & Co.....	Reading, Pa.
Atlas Car Mfg. Co.....	Cleveland, O.	O. N. Townsend.....	Zanesville, O.	Clyde C. Murray.....	Reynoldsville, Pa.
J. W. Chandler.....	Cleveland, O.	A. R. Foxley.....	Portland, Ore.	C. S. Estes.....	Ridgway, Pa.
Cleveland Brick & Clay Mfg. Co.....	Cleveland, O.	G. E. Goldner.....	Willamina, Ore.	Elk Fire Brick Co.....	St. Mary's, Pa.
.....	Cleveland, O.	F. Oliver.....	Beaver Falls, Pa.	Union Brick Co.....	Shamokin, Pa.
Robert J. Dawson.....	Cleveland, O.	F. R. Kanengeiser.....	Bessemer, Pa.	Alfred Yates.....	Shawmut, Pa.
Ohio Clay Co.....	Cleveland, O.	J. B. Hammond.....	Bolivar, Pa.	S. A. Barley.....	Steelton, Pa.
Dover Fire Brick Co.....	Cleveland, O.	C. E. Foster.....	Bradford, Pa.	A. L. Moredock.....	Waynesburg, Pa.
Deckman-Duty Brick Co.....	Cleveland, O.	G. W. Foster.....	Bradford, Pa.	George T. Dickover.....	Wilkesbarre, Pa.
Wm. H. Hunt.....	Cleveland, O.	Wm. Hanley.....	Bradford, Pa.	Wm. S. Dickover.....	Wilkesbarre, Pa.
Fred G. Langner.....	Cleveland, O.	W. M. Hodges.....	Bradford, Pa.	David Atherton.....	Williams Grove, Pa.
Murray Brick Co.....	Cleveland, O.	E. F. Knight.....	Bradford, Pa.	David Stuempfle Sons.....	Williamsport, Pa.
Ohio Ceramic Engineering Co.....	Cleveland, O.	John P. Melvin.....	Bradford, Pa.	J. C. Wilson.....	Youngsville, Pa.
.....	Cleveland, O.	T. J. Melvin.....	Bradford, Pa.	York Shale Press Brick Co.....	York, Pa.
Queisser-Bliss Co.....	Cleveland, O.	Chas. C. Stratton.....	Bradford, Pa.	W. G. Titcomb.....	Providence, R. I.
F. H. Robinson.....	Cleveland, O.	C. P. Mayer Brick Co.....	Bridgeville, Pa.	F. H. Hvatt.....	Columbia, S. C.
C. B. Stowe.....	Cleveland, O.	Lee B. Humphreys.....	Brookville, Pa.	George H. Drew.....	Ft. Mill, S. C.
John Wilson.....	Cleveland, O.	Geo. E. Howard.....	Butler, Pa.	Knoxville Brick Co.....	Knoxville, Tenn.
J. M. Adams.....	Columbus, O.	Shull & Badger Brick Co.....	Butler, Pa.	T. C. Lundv.....	Knoxville, Tenn.
F. Henry Angell.....	Columbus, O.	Walter Ficks.....	Carnegie, Pa.	Tennessee Brick Co.....	Memphis, Tenn.
S. M. Chase.....	Columbus, O.	George T. Kirkbride.....	Carnegie, Pa.	Robert A. Speed.....	Memphis, Tenn.
W. O. Copeland.....	Columbus, O.	Clearfield Clayworking Co.....	Clearfield, Pa.	Frank H. Reid.....	Memphis, Tenn.
C. H. Doan.....	Columbus, O.	W. F. Soisson.....	Connellsville, Pa.	W. G. Bush & Co.....	Nashville, Tenn.
Ohio Filler and Shield Co.....	Columbus, O.	D. Warren DeRosay.....	Corry, Pa.	Joe P. Fulcher.....	Nashville, Tenn.
S. J. Heafield.....	Columbus, O.	Charles Slattery.....	Darlington, Pa.	T. L. Herbert.....	Nashville, Tenn.
A. W. Holl.....	Columbus, O.	Dubois & Butler Brick Co.....	Dubois, Pa.	E. T. Lewis Co.....	Nashville, Tenn.
The Ironsides Co.....	Columbus, O.	McKeesport Brick Co.....	Duquesne, Pa.	W. D. Le Sueur.....	Nashville, Tenn.
The Jeffrey Mfg. Co.....	Columbus, O.	C. K. Williams & Co.....	Easton, Pa.	Elgin-Butler Brick and Tile Co.....	.....
L. G. Kilbourne.....	Columbus, O.	Joseph Dudenhoefer.....	Erie, Pa.	.....	Austin, Tex.
The Kilbourne & Jacobs Mfg. Co.....	Columbus, O.	Will H. Miller.....	Erie, Pa.	J. V. Montrieff.....	Bridgeport, Tex.
.....	Columbus, O.	U. J. Matson.....	Falls Creek, Pa.	Kal Schwarts.....	Corsicana, Tex.
Ellis Lovejoy.....	Columbus, O.	E. P. Lippincott.....	Greensburg, Pa.	J. E. Whiteselle.....	Corsicana, Tex.
Edward Orton.....	Columbus, O.	Fred J. Harm.....	Harrisburg, Pa.	J. M. Harry.....	Dallas, Tex.
Jacob Pfeiffer.....	Columbus, O.	Chas. H. Kinter.....	Harrisburg, Pa.	Fraser-Johnston Brick Co.....	Dallas, Tex.
Ross C. Purdy.....	Columbus, O.	G. W. Lenkerd.....	Indiana, Pa.	Geo. Paul.....	El Paso, Tex.
W. D. Richardson.....	Columbus, O.	Archie Sproul.....	Jeannette, Pa.	Arthur C. Goetz.....	Ft. Worth, Tex.
J. A. Topping.....	Columbus, O.	Wm. B. Daugherty.....	Kittanning, Pa.	W. M. Staniforth.....	Gainesville, Tex.
The Conneaut Shovel Co.....	Conneaut, O.	G. W. McNeas.....	Kittanning, Pa.	Sunset Brick and Tile Co.....	Gonzales, Tex.
F. B. Dunn.....	Conneaut, O.	Kushequa Brick Co.....	Kushequa, Pa.	A. L. Branson.....	Marlin, Tex.
N. C. Ralph.....	Conneaut, O.	Wm. R. Martin.....	Lancaster, Pa.	Edward Whitmer.....	Thurber, Tex.
The Keller Brick Co.....	Cuyahoga Falls, O.	Geo. S. Good Fire Brick Co.....	.....	George R. Hill.....	Tyler, Tex.
I. M. Justice.....	Dayton, O.	.....	Lumber City, Pa.	J. P. Cahoon.....	Salt Lake City, Utah.
Chas. W. Raymond, Jr.....	Dayton, O.	John P. McIntyre.....	McKeesport, Pa.	Justic Jungh.....	Salt Lake City, Utah.
Geo. M. Raymond.....	Dayton, O.	Harry B. Simpson.....	Monongahela, Pa.	Wm. S. Simpkins.....	Salt Lake City, Utah.
J. L. Schroll.....	Dayton, O.	P. A. Smith.....	New Brighton, Pa.	J. N. Shrum.....	Dayton, Va.
Teigler Bros.....	Dayton, O.	Beaver Clay Mfg. Co.....	New Galilee, Pa.	National Paint and Manganese Co.....	.....
Delaware Clay Co.....	Delaware, O.	W. C. Alwine.....	New Oxford, Pa.	.....	Lynchburg, Va.
Mitchell Brick Co.....	Delhi, O.	J. E. Harvey.....	Orviston, Pa.	J. W. Davis.....	Newport News, Va.
B. F. Cotter.....	Coshocton, O.	M. C. Leinbach.....	Orviston, Pa.	F. W. Dennis.....	Norfolk, Va.
Geo. Gleckler.....	Elmore, O.	Cyrus Chambers, Jr.....	Overbrook, Pa.	J. H. Doyle.....	Norfolk, Va.
J. W. Forsythe.....	Fremont, O.	George B. Waite.....	Parsons, Pa.	Edwin A. King.....	Richmond, Va.
E. M. Freese & Co.....	Galion, O.	Patton Clay Mfg. Co.....	Patton, Pa.	A. V. Sturgeon.....	Reid's Ferry, Va.
B. E. Place.....	Galion, O.	E. H. Carroll.....	Philadelphia, Pa.	W. Benj. Davis.....	Richmond, Va.
The Wassall Brick Co.....	Glouster, O.	P. F. Carroll.....	Philadelphia, Pa.	H. L. Jacobs.....	Suffolk, Va.
Puritan Brick Co.....	Hamden Junction, O.	J. H. Chambers.....	Philadelphia, Pa.	Denny-Renton Clay and Coal Co.....	.....
The Hamilton Brick Co.....	Hamilton, O.	S. O. Conkling.....	Philadelphia, Pa.	.....	Seattle, Wash.
C. H. Forry.....	Hanover, O.	I. N. Conkling.....	Philadelphia, Pa.	Ellis Gates.....	Seattle, Wash.
R. B. Burr.....	Lancaster, O.	Wm. Conway.....	Philadelphia, Pa.	S. Geijsbeek.....	Seattle, Wash.
Robt. L. Manigal.....	Lancaster, O.	S. B. Dobbs.....	Philadelphia, Pa.	W. C. Mitchell.....	Seattle, Wash.
R. D. McManigal.....	Logan, O.	Murrell Dobbins.....	Philadelphia, Pa.	S. P. Baird.....	Charleston, W. Va.
W. I. Foster.....	London, O.	John H. Earley.....	Philadelphia, Pa.	W. D. Isaac.....	Charleston, W. Va.
Thew Steam Shovel Co.....	Lorain, O.	O. W. Ketcham.....	Philadelphia, Pa.	Geo. E. Snowden.....	New Cumberland, W. Va.
A. T. Blatchford.....	Malvern, O.	Mack Manufacturing Co.....	Philadelphia, Pa.	E. P. Elzey.....	Parkersburg, W. Va.
Marion Steam Shovel Co.....	Marion, O.	T. B. McAvoy.....	Philadelphia, Pa.	Norton L. Upson.....	Parkersburg, W. Va.
C. H. Carpenter.....	Martins Ferry, O.	A. R. Root.....	Philadelphia, Pa.	Fred C. Bogk.....	Milwaukee, Wis.
The Everhard Co.....	Massillon, O.	James R. Schurz.....	Philadelphia, Pa.	George J. Schwarz.....	Milwaukee, Wis.
McArthur Brick Co.....	McArthur, O.	Webster & Keyser.....	Philadelphia, Pa.	Ferdinand Vogt.....	Milwaukee, Wis.
L. E. Fox.....	Mendon, O.	Thomas M. Wilson.....	Philadelphia, Pa.	Gunther Bros.....	Port Washington, Wis.
Frank Shenkle.....	Mineral City, O.	Beckett Brick Works.....	Pittsburg, Pa.	Henry W. Carter.....	Oshkosh, Wis.
C. N. Miller.....	Mogadore, O.	A. V. Bleininger.....	Pittsburg, Pa.	Oscar Zimbal.....	Sheboygan, Wis.
Ed. Diefenthaler.....	Mulberry, O.	Central Brick Co.....	Pittsburg, Pa.	.....	.....
D. J. C. Arnold.....	New London, O.	Darlington Brick & Mining Co.....	.....	.....	.....
John D. Martin.....	New Straitsville, O.	.....	Pittsburg, Pa.	.....	.....
Wm. G. Griffiths.....	Oakhill, O.	Grant Dibert.....	Pittsburg, Pa.	.....	.....
J. D. Fate & Co.....	Plymouth, O.	Frank G. Evatt.....	Pittsburg, Pa.	.....	.....
Adam Buch.....	Portsmouth, O.	W. H. Gibb.....	Pittsburg, Pa.	.....	.....
Portsmouth Paving Brick Co.....	Portsmouth, O.	Wm. Flinn.....	Pittsburg, Pa.	.....	.....
.....	Portsmouth, O.	James T. Fox.....	Pittsburg, Pa.	.....	.....
The Peebles Paving Brick Co.....	Portsmouth, O.	Gloninger & Co.....	Pittsburg, Pa.	.....	.....
.....	Portsmouth, O.	.....	.....	.....	.....

IN MEMORIAM.

John Miller.....Washington, D. C.
Wm. Lahey.....Newburgh, N. Y.
Milton N. Grant.....Columbus, O.
A. R. Harwood.....San Antonio, Tex.

THE ENTERTAINMENT OF THE LADIES.

THOSE in charge of the entertainment of the ladies attending the N. B. M. A. convention at Pittsburg proved themselves adepts in the amenities of such an occasion. The chairman, Mr. J. C. Adams, and his lieutenant, Mr. Grant Dibert, were ably assisted by the committee of ladies who welcomed the visitors at headquarters, in the elegant French room of the Fort Pitt Hotel, and extended every courtesy possible.

The first formal entertainment was a theater party Wednesday evening, which proved an enjoyable affair. Thursday morning a trip was made to the immense establishment of the H. J. Heinz Company, the home of the far-famed 57 varieties, which of late years has added so much to the spice of life. The party, which numbered a little more than one hundred in all, was conveyed in special trolley cars to the food works and landed in front of the Heinz Administration Building, a large, beautiful structure, where there have been assembled many rare works of art of special interest to the housewife.

First a group picture was taken by a Heinz photographer,

and then the party proceeded to inspect the different departments of what is claimed to be the largest, cleanest and most perfectly equipped pickling and preserving works extant. After two hours or more of sight-seeing, the party returned to the dining room in the Administration Building, where an appetizing luncheon was served. Then repairing to the auditorium, they listened to an instructive lecture on foods, and were shown a stereopticon view of the group picture taken on their arrival, a reproduction of which we are pleased to present. Before the departure each guest was presented with a souvenir, a fine silver pickle fork. Mrs. Will P. Blair, of Terre Haute, Ind., speaking for the visitors, thanked Messrs. Heinz and the local committee for the entertainment afforded.

ARKANSAS BRICKMAKERS TO MEET.

The annual meeting of the Brickmakers' Association of Arkansas is to be held at Little Rock, Ark., March 28 and 29. The convention will be attended by clayworkers from Arkansas, northern Louisiana and eastern Oklahoma. An interesting program is being prepared. For further particulars address Charles E. Taylor, Secretary, Little Rock, Ark.



The Girls in Attendance at the N. B. M. A. Convention at the Entrance to Heinz & Co.'s Administration Building.

THE N. B. M. A. CONVENTION ANNEX AND ANNEXERS.

CONVENTION week was a strenuous one for the machinery men. The unusually large attendance and the fact that a great many new members were present kept the representatives of the various clayworking machinery and supply firms busy night and day. By edict of the executive committee of the Clay Machinery Association, no exhibits of machinery were made in the convention hall, in the rear of which tables were provided on which were displayed small exhibits, specimen brick, etc. Several of the large clayworking machinery firms had special exhibits in their rooms, and there displayed to their many visitors the merits of their appliances.

The most pretentious exhibit at the convention was that of the American Clay Machinery Company, of Bucyrus, Ohio. They had hired the Assembly Hall in the Fort Pitt Hotel for the week, and certainly made excellent use of it. Near the doorway of the Assembly Hall they constructed an archway tastily draped with American flags. Suitable placards were employed to direct the delegates and to show them who it was that believed thoroughly in advertising. In the Assembly Hall on either side were tables heavily loaded with samples of clay products made by prominent firms using the American machinery. Nearly every class of ceramic ware was on display, and beautiful specimens they were, too. Loads upon loads of yellow pencils, memoranda books and most acceptable metal paper knives or letter openers were in full view near the doorway and were presented to the delegates with the compliments of the company by the ever-smiling representatives, of which there were twenty, namely: R. C. and L. W. Penfield, E. H. Callaway, James Ridgway and Fred S. Naugle, of New York, S. J. Heafield, Columbus, Ohio; G. C. Stoll, of Wheaton, Ill.; W. H. Whiting, Pittsburg, Pa., and F. L. Hopley, B. E. Elbersen, F. L. Minor, L. E. Dow, H. B. Wiley, C. B. Sharer, R. O. Perrott, W. R. Cunningham, Charles Duncan, E. J. Rutland and J. P. Penfield, of Bucyrus, Ohio.

The display of ceramic ware, the decorations of the room and the presentation of the souvenirs were interesting points of the American exhibit, but the main feature and one which was the most unique and startling ever used in advertising in the clay line was their moving picture show. The films shown were of the American Clay Machinery Company's Brick Setting System. The pictures shown were taken in and about the Chicago plants, in which the system has been installed. There were two films, each taking about ten minutes. The machine was run almost constantly during the latter part of the week, and the Assembly Hall was filled with people at nearly every performance.

Down the hall not far from the American display the rooms of the C. W. Raymond & Co., of Dayton, Ohio, were used for an attractive exhibit by that well-known firm, and Messrs. George and Charles Raymond, I. M. Justice, R. W. McElroy, G. C. F. Vater and J. I. Naugle, the company's representatives, were busily engaged in receiving the delegates, describing and explaining the operation and merits of their machinery and their dryer and the Youngren continuous kiln. Small models of the Horton machine, the Raymond radiated heat and metallic radiation dryers and the Youngren continuous kiln were on display and were of great interest to the visitors. Photographs, blue prints and catalogs were much in evidence, and every old and new acquaintance received a valuable Atlas of the World and a neat pamphlet of the clay products section of the United States Geological Survey, with the compliments of the C. W. Raymond Company.

The E. M. Freese Company, of Galion, Ohio, had a nice display of catalogs, blue prints, photographs, bulletins and bricks in Room 228. A small model of the Standard rattler was of much interest to their guests. The representatives, H. H. and A. J. Freese, of Galion, Ohio; H. I. Irvin, Pittsburg, Pa.; R. A. Whiston, New York; B. E. Place, Galion, Ohio, and E. L. Hess, of St. Louis, distributed handsome pocket-

books as souvenirs, and extended the glad hand to the visitors. They had a large exhibit in the Phipps Power building, Duquesne way near Sixth street, which was reached from the hotel by a free bus line. There they had in operation a Model "G. A." Freese machine with a size 50 automatic cutter. On this machinery they made round edge, grooved, wire-cut lug paving blocks.

The Phillips & McLaren Company, of Pittsburg, manufacturers of dry pans, was the host of many interested delegates. Their factory was thrown open to the visitors and Messrs. W. J. and Bayard Phillips and J. McLaren were kept busy the entire week entertaining and advertising their business.

The Williams Patent Crusher and Pulverizer Company, of St. Louis, was represented by their Pittsburg agent, Mr. John L. Kirk, who was very active in advertising the Williams line. The Williams crusher has established an enviable reputation in the clayworking fields.

The Chambers Brothers' Company, of Philadelphia, Pa., was well represented by J. Howard Chambers, E. R. Frazier, and A. R. Root, who wore the "smiles that won't come off," and greeted the conventioners in their usually pleasant manner. In Room 293 they exhibited the 333 model of the Chambers big wheel brick machine. Catalogs, blue prints and photographs were also on display.

The Chisholm Boyd & White Co., of Chicago, Ill., was represented by that familiar figure, Mr. Harry J. Flood, who



H. J. Flood, President National Clay Machinery Association, Chicago, Ill.

never fails to attend the national convention, and, while he makes no apparent effort to get business, but devotes himself to the social side of affairs for the week, the business his firm has handled the last few years is proof that he gets his full share of good things.

The Bonnot Company, of Canton, Ohio, was represented by A. A. Oldham and A. W. Aylesworth. They had a display of catalogs and bulletins in their rooms and distributed liberally a folding two-foot steel rule and a 1910 diary. This firm now makes a large line of brick and tile machinery, as will be seen by referring to ads on pages 390-397. They are doing a large business, and report that last year's orders were the best in the history of the company.

Mr. John C. Boss, of Elkhart, Ind., was much in evidence convention week. He mingled among the delegates and answered questions concerning the Boss system of burning, which has become quite popular in this country. In his room, 230, he displayed catalogs and blue prints and entertained his friends and new acquaintances.

The H. Brewer & Co., of Tecumseh, Mich., was represented by Mr. Davis Brown, who has always been a welcome delegate to the conventions. He extended to the visitors a fake souvenir book, which exploded when the curious recipient raised the cover to see the title page. It is safe to say that the joker commanded the attention of most of the conventioners in this manner, the tricked ones becoming in-

interested in catching fresh suckers. They were easily convinced, however, that the H. Brewer & Co.'s line is a good one, and were interested in reading the catalog and bulletins Mr. Brown distributed among them.

Mr. C. G. Stevenson, of Wellsville, Ohio, with the well-known firm of the Stevenson Company, had few idle moments convention week. He was busily engaged in taking orders and explaining to the new delegates the facts concerning their dry pans, sewer pipe presses and other machinery.

The Marion Steam Shovel Company, of Marion, Ohio, was represented by W. R. Waddell. He had little trouble in convincing the delegates of the merits of Marion shovels and took pleasure in distributing their literature and cultivating a better acquaintance with the delegates.

The Roessler-Hasslacher Chemical Company, of New York, had a delegation that did that company credit. Messrs. Otto Will and W. L. Bruner, of Perth Amboy; Werner Malsel, New York, and Harry W. Smith, of East Liverpool, Ohio, kept the ball rolling and did their share in the general levity.

The Main Belting Company, of Philadelphia, Pa., famous for the Leviathan belting, had as representatives, Messrs. J. D. McIlwain, of Pittsburg; W. C. Schreiner, of Philadelphia, and S. C. Haines, of Chicago. As a souvenir they presented the delegates a trick pocketbook, which caused many a good laugh.



W. N. Durbin, Secretary National Clay Machinery Association, Anderson, Ind.

Hervey and Lambert Haigh, of Catskill, N. Y., represented their firm, which builds the Haigh improved new system of continuous kilns. Mr. H. Haigh is an expert brick works engineer, and has installed his kiln in some of the finest plants in this country. Their catalogs, reprints and photographs were on display in the convention hall.

The Wellington Machine Company, of Wellington, Ohio, was much in evidence convention week. Messrs. H. S. and R. C. Bennett were this well known firm's representatives. They held numerous receptions in their room, in which was exhibited catalogs, blue prints and other advertising literature. In the convention hall they had on display a large brick barrow of new design and brick molds.

The Standard Dry Kiln Company, of Indianapolis, Ind., was represented by V. F. Outland, who gave the delegates several neat souvenirs, one of which was a combination pen and pencil bearing the firm's name and address. The Book of Smiles and desk cards he handed out promiscuously were attractive and received much favorable comment.

An interesting display in the convention hall was that of the miniature hollow interlocking blocks made by the Twin City Brick Company, St. Paul, Minn. These blocks, while only samples, showed the great advantage of their use in the construction of buildings and residences, and were inspected with deep interest by the conventioners. Mr. Fritz Koch and Mr. Siwart Smit, of St. Paul, answered all in-

quiries entertainingly and were the center of much button-holing throughout the week.

The Richardson & Lovejoy Engineering Company, of Columbus, Ohio, had as their representatives W. D. Richardson and Ellis Lovejoy, who were much in evidence the entire week. Their work in the Ceramic Society and N. B. M. A. meetings is known to all the convention delegates. They were besieged with button holers and given little chance for rest until after the convention was adjourned.

The Ohio Ceramic Engineering Company, of Cleveland, Ohio, had on exhibition in Room 228 a small hand press for making miniature bricks and tiles for advertising purposes. This firm makes a high grade line of dryer cars and represses. The representatives were none other than the head of the firm, Mr. Frank Robinson, and Mr. Lloyd Brown.

The J. D. Fate & Co., of Plymouth, Ohio, a firm well known to the clayworking world, was represented by Mr. Harley Fate, the man of big proportions, every inch of which spells good humor and happy days. He spent a pleasant week and reported that his business could not be better. His mannerism certainly spoke well for the condition of the J. D. Fate & Co.'s business. He distributed an unusually attractive filing case, which was both novel and useful.

Mr. Richard G. Hoffman, of LaGrange, Ill., the American agent for the Diesener clay cleanser, became acquainted with the delegates, to whom he pleasantly explained the merits of his unusual machine for purifying clays. He had a small model on exhibition in Room 228.

The Anderson Foundry and Machine Works, of Anderson, Ind., was represented, as usual, by William Durbin, who had little time for anything other than convention work during the busy week. He informed the writer that they are doing a large business and are very gratified in the outlook for the coming year. His catalogs and advertising literature were displayed in the convention hall, while a small model of his machine was on exhibition in Room 132.

C. and A. Potts & Co., of Indianapolis, was represented by Mr. Albert Potts, who has not missed a convention for many years. He mingled with the delegates and extended the glad hand to all his old and new friends. He distributed to advantage their advertising literature.

Of course, the "King of Ireland" was there. You couldn't have a convention unless John J. Moroney, of the Chicago Brick Machinery Company, of Chicago, Ill., was present. He is always on deck with the same smile and a new batch of stories, and spreads good humor with every step—incidentally, advertising the Chicago Brick Machinery Company's lines and keeping in touch with his customers.

The Matthews Gravity Carrier Company, of St. Paul, Minn., had on exhibition in Room 427 a sample of their carrier and explained to the inquiring delegates the merits of their system.

The Thew Automatic Steam Shovel Company, of Lorain, Ohio, was represented by Messrs. F. A. Smythe, D. D. Deeds and A. C. Vicary, all of whom spent a busy week. In their rooms they displayed catalogs, blue prints and photographs. This well known firm is doing a large business and has little need for worry as to the future, as they make a good product and have an established reputation.

The Martin Brick Machinery Company, of Lancaster, Pa., was represented by C. H. Horton, who took pleasure in being button-holed and told entertainingly of the many good points of the Martin machinery and supplies. Blue prints, catalogs, sketches and photographs, together with a large drawing of a plan of a yard, were displayed in the convention hall.

L. E. Rodgers and J. O. Trautwein, of Chicago, Ill., with the L. E. Rodgers Engineering Company, were there as advocates of the "smile that won't come off" system, and transmitted their good nature to the worried ones with dryer problems by showing them the correct way to remedy drying troubles.

The Charleston Testing Laboratories, of Charleston, W. Va., was represented by Messrs. S. P. Baird and Paul E. Demmler. In their room near convention headquarters they

displayed charts and samples which were of interest to the visitors and demonstrated this company's ability as consulting ceramic engineers and chemists.

F. S. Thompson, of Chicago, Ill., represented the Beaver Belting Company, and was a familiar figure in the lobbies and convention hall.

The interests of the Arnold-Creager Company, of New London, Ohio, were well taken care of by Charles H. Arnold, who had on display an attractive line of catalogs and bulletins.

The Orenstein-Arthur Koppel Company had a display of miniature steel cars and tracks in the convention hall proper, and distributed catalogs and bulletins setting forth the merits of their appliances.

The Ohio Galvinizing Mfg. Co., of Niles, Ohio, displayed brick steel pallets in the convention hall. Mr. A. J. Bentley, their representative, lost little time in getting before the delegates their advertising literature. This company makes a high grade line of pallets.

Edward Brown & Son, of Philadelphia, Pa., manufacturers of the Brown electric pyrometers for the accurate measure-

ican Ceramic Society, while the latter they gave over to the advertising of the Frink pyrometers.

Thomas M. Wilson, of Philadelphia, Pa., distributed literature advertising the Wilson Kiln and Dryer Company.

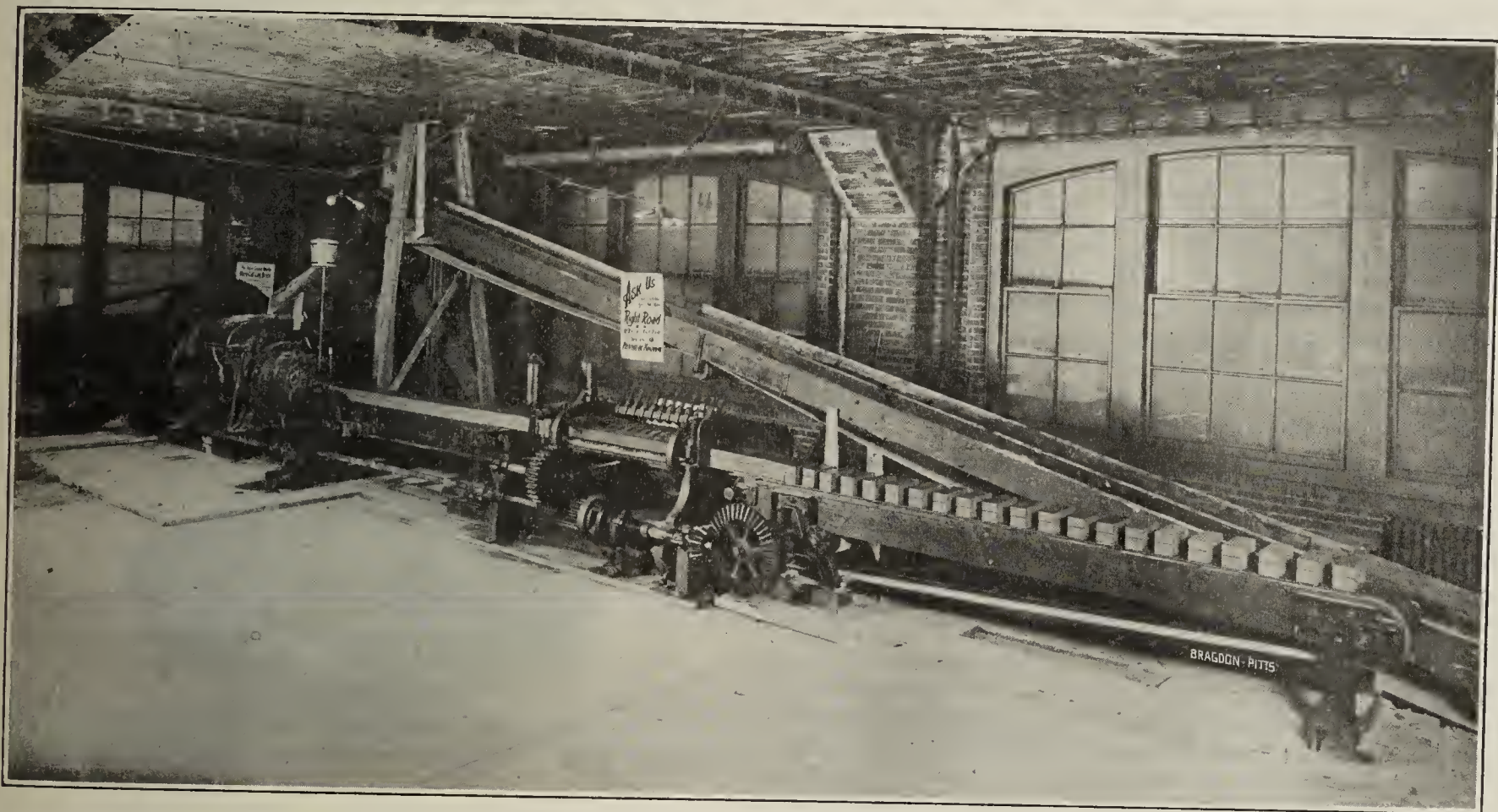
Mr. L. K. Eben represented the Atlas Car and Mfg. Co., of Cleveland, Ohio. This firm makes a complete line of cars, dryer cars and cars for all industrial purposes.

Charles Stolp, of Chicago Heights, represented the Stolp-Wiederhold Company. Mr. Stolp and his partner are ceramic engineers, their specialty being remodeling and extension of roofing tile and brick plants.

The G. B. Mentz Company was represented by G. B. Mentz, of Walkill, N. Y. In the convention hall he displayed samples of his brick moulds and pallets. He gave as a souvenir an excellent pocket knife.

THE DUNN WIRE-CUT-LUG BRICK COMPANY'S EXHIBIT.

The enterprise of F. B. Dunn, the inventor of the Dunn wire-cut-lug brick cutting device, is certainly commendable, and is of the American type which surmounts all obstacles and reaches the objective point by the most direct route.



The Special Exhibit of Freese Brick Machine and Dunn Cutter, Phipps Power Building, Pittsburg.

ment of temperatures, had on exhibition a number of their instruments. Mr. W. H. Gibbs looked after the company's interests.

An active annexer was the representative of the American Pulverizing Company, of St. Louis, Mo., Mr. George C. Videto, who was much in evidence throughout the week.

The Dunlap Mfg. Co., of Bloomington, Ill., was represented as usual by O. W. Dunlap, who has had a very busy season and thinks the outlook for a big year's business in 1910 to be very bright. His catalogs and placards were attractive and proved "trade getters" for this firm.

The interests of the Frost Mfg. Co., of Galesburg, Ill., were handled by Mr. William Simpson, who made many friends and was an enthusiastic booster for his company. It was Mr. Simpson's first appearance for a number of years, but he found he had not been forgotten.

The Ricketson Mineral Paint Works, of Milwaukee, Wis., displayed samples of their products in the convention hall. Mr. Frederick C. Bogk was their active representative.

R. L. Frink and R. B. Burr, of Lancaster, Ohio, were busy all week, the first part of which they devoted to the Amer-

Learning that there was to be no exhibits of heavy machinery at the N. B. M. A. convention this winter, and having what he thought the brickmakers ought to have and know about, he straightway hiked for Pittsburg and arranged for suitable space in the Phipps Power Building, and there installed a full-sized Freese Model G-A. brick machine, with his latest improved Dunn automatic cutter, clay conveyor, elevator, etc., all connected up and operated by electric power, ready to make brick, real brick, at a moment's notice. Convention week he invited the visiting clayworkers to witness the operation of the newest thing out in brick cutters. When the heavy snowstorm set in Wednesday, and it became evident that the delegates would find it somewhat difficult to cover even the five or six blocks between the Fort Pitt Hotel and the Phipps building, Mr. Dunn again rose to the occasion, and established a free bus line for the special use of those who cared to visit the exhibit. The bus was large, clean and comfortable, drawn by a fine span of heavy draft horses, so those who made the trip, and it seemed that most of the delegates did, rather enjoyed it. The exhibit was certainly convincing, the cutter worked to perfection and demonstrated that Mr. Dunn's claims, which are set forth on page 336 of this issue, are well founded. The accompanying view of the exhibit

gives a fair idea of the "layout," and so many favorable comments upon it were heard that it seems to indicate that such exhibits are desirable convention features, and hence when the subject is considered in the future, it will be well to pay heed to this fact.

Mr. Dunn writes that the exhibit proved so popular that he has kept the machinery in place in order that it might be viewed by a number of brick manufacturers who, unable to get to the convention, have since then made special trips to Pittsburg just to see the new Dunn cutter in operation.

Mr. Anton Berg, of Toronto, Canada, inventor of the Berg press, spent a busy week. In his room he had on exhibition a small model of his improved machine and a model of the old.

The interests of the National Roofing Company, of Tonawanda, N. Y., were looked after by Morris Ayrault, the Pittsburg representative. Samples of asphalt and roofing paint were displayed in the convention hall.

The Langner Manufacturing Company, of Cleveland, Ohio, represented by Fred G. Langner, displayed a nickel-plated brick clamp in the convention hall.

A very interesting display of high grade ware was that of the Ohio Clay Company, of Cleveland, Ohio, which was represented by W. C. and C. W. Denison. These samples were of the Denison interlocking hollow brick used for wall construction. It is needless to say that their display attracted a great deal of attention.

Although but new recruits in the Association, the delegation from the McLaughlin Building Material Company, of Chicago, claimed the honor of being first on the ground at Pittsburg—their first convention. Those making up this delegation were General Manager B. M. Mitchell, General Sales Agent W. C. Crolius, C. J. Perrot and Frank H. Silha. They had their headquarters at the Hotel Henry.

There were many other well-known firms represented, such as the Morehead Manufacturing Company, Detroit, Mich.; Pulsometer Steam Pump Company, New York; McManigal Grateless Furnace Company, Logan, Ohio; The Trenton Iron Company, Trenton, N. J.; Westinghouse Electrical Manufacturing Company, Pittsburg, Pa.; Broderick & Co., St. Louis; Hammond Company, Bolivar, Pa.

Some fine samples of brick were on display, some of which were furnished by The Scioto Fire Brick Company, of Sciotoville, Ohio; Oakland Pressed Brick Company, of Zanesville, Ohio; Hydraulic Press Brick Company, Cleveland, Ohio; Kittanning Clay Manufacturing Company, Kittanning, Pa.; Ohio Mining and Manufacturing Company, Shawnee, Ohio; Corning Brick and Terra Cotta Company, of Corning, N. Y.; Shawmut Paving Brick Company, of Shawmut, Pa.; The Bessemer Limestone Company, of Youngstown, Ohio; Harbison-Walker Refractory Company, Pittsburg, Pa.; Brazil Clay Company, Brazil, Ind., and others.

FADELESS MORTAR COLORS.

There are probably but few users of building materials in the country who are not already familiar with the excellent reputation of the "Red Brick" brand mortar colors manufactured by the Ricketson Mineral Paint Works of Milwaukee. These colors are made from the purest Bessemer ores by a special process which removes all the oxides that will not stand weathering. So jealously has the purity of these colors been guarded that in the somewhat more than twenty years during which they have been used and marketed not a single case of cracking or fading has been reported. The company has recently gotten out a snappy little novelty folder, illustrative of this point and showing the range of the line, which is well worth sending for. It will also more than pay any architect or builder to have sample packages of this old reliable brand of colors on his shelves.

TWELFTH ANNUAL CONVENTION OF THE AMERICAN CERAMIC SOCIETY.

Held at Pittsburg, Pa., in the Parlors of the Seventh Avenue Hotel, February 7-9, 1910.

WHEN THE PRESIDENT, Ross C. Purdy, called the convention of the American Ceramic Society to order, Monday morning, Feb. 7, the parlor of the Seventh Avenue Hotel was crowded with representative ceramists. Fully eighty members were present at this time, while the final registration totaled over one hundred.

The crowded two days and a half program was opened with an interesting address by the president. In his address he spoke on the subject, "Pyrophysical and Chemical Properties of Clay," making no attempt to describe the behavior in burning of any particular clay or type of clay and confining his remarks to the definition of such terms as vitrification, fusion, deformation, flux, etc. He declared that when a mixture of mineral particles is subjected to heat treatment sufficient to cause them to stick together by fusion, resulting ultimately in vitrification and possibly complete fusion, the change in state is due more largely to solution of one mineral in the other rather than by chemical reaction. We used to



Heinrich Ries, President American Ceramic Society, Ithaca, N. Y.

be taught that vitrification and fusion resulted wholly from chemical reaction. That such teachings were in most cases false is shown by Bleininger in Volume IX, Transactions of the American Ceramic Society. In giving his definition of a flux he said: A flux is a mineral or mixture of minerals, which, through heat treatment, is the first to form a molten liquid in which the excess components may be dissolved. Under this definition no mineral or class of minerals can be said to be fluxes. Rather than define substances as fluxes, Mr. Purdy suggests that they be considered as fluxing materials. He based his argument on the fact that in most cases no one material alone constitutes the flux. He divided fluxing materials into three groups. The first group he called neutral fluxing materials. Fluxing materials belonging to this group are in a given mixture the first to fuse and they themselves form the solvent in which the other minerals are dissolved. They do not react chemically with minerals that are being dissolved. Feldspar and mica were cited as examples of neutral fluxing materials. The second group was mutual fluxing materials. The materials belonging to this group do not react with one another chemically. A certain mixture of these minerals would be more fusible than any one of the minerals taken alone. The third group are the positive fluxing materials, which react chemically with other components present, forming new chemical compounds, which in turn may

serve as mutual fluxing materials with excess components. Mr. Purdy showed further why it is impractical to classify materials into any one of these groups with any degree of positiveness, for no material will behave in the same manner in all sorts of mixtures.

Mr. Purdy showed how refractory tests did not determine the fusibility of the clay, but merely the heat treatment sufficient to cause deformation of the test cone. He discussed further the effect of viscosity and size of grain upon the readiness with which the clay can be deformed. He further showed by citation that clays can be deformed and warped before they have become vitrified.

Throughout the address emphasis was made upon the fact that vitrification, fusion and deformation of clay wares resulted from the formation of an igneous solution within the clay body, and that the behavior of the clay in the fire depended upon the character or nature of this igneous solution. In some cases this igneous solution is so viscous that complete vitrification and even a high state of glassiness may be attained before any serious deformation of the ware has ensued. In other cases this igneous solution would be so fluid as to permit of kiln marking and warping long before the ware could be said to have absorbed vitrification.

Following the address, scrutineers of election were appointed, after which Secretary Edward Orton, Jr., read the minutes of the meetings held in 1909. The report reviewed the work accomplished at the last convention, outlined the



Ellis Lovejoy, Treasurer American Ceramic Society, Columbus, Ohio.

work at hand for the present meeting and told entertainingly of the pleasant mid-summer meeting of the society at Kittanning, Ford City and Pittsburg.

After the report of officers, which showed the society to be in an excellent condition both numerically and financially, the result of the election was announced, to be as follows: President, Heinrich Ries, Ithaca, N. Y.; Vice-President, Richard Hice, Beaver, Pa.; Secretary, Edward Orton, Jr., Columbus, Ohio, and Treasurer, Ellis Lovejoy, Columbus, Ohio. These gentlemen, with C. W. Parmelee of New Brunswick, N. J., H. A. Ashley of Pittsburg, Pa., and William Cannan of Syracuse, N. Y., constitute the board of directors. Mr. W. D. Richardson of Columbus, Ohio, was re-elected editor of the transactions.

The rest of the session was given over to the usual business of the society and concluded with a talk by Dr. Wadsworth, of the University of Pittsburg, who told of the university's courses and extended a hearty welcome to the society in behalf of the president and expressed the wish that the members would pay the university a visit during their stay in Pittsburg.

The Monday afternoon session, known as the practical potters' meeting, was given over to papers and discussions on subjects of interest to that industry.

Monday evening an informal smoker and section Q meeting was enjoyed by more than one hundred visitors in the

hotel's parlor. The inner man was supplied with amber colored fluid, and Prof. A. V. Bleining and the local people were most successful in their attempt to show the visiting members a pleasant time.

The Tuesday's sessions were held in the laboratories of the United States Geological Survey, located in the old Arsenal grounds. The delegates left the hotel at 9 o'clock in the morning, returning late in the evening for supper.

The day's program was so long that two separate sessions were deemed advisable, one known as Section A was under the direction of the President, while the Secretary presided over the other, known as Section B. Great progress was made in this manner, and both sections were informed at all times as to papers being read before the other by means of blackboards.

Lunch was served the hungry delegates at noon in two of the rooms in the large building, No. 10, during which Treasurer Lovejoy got acquainted with the members and, through his "taking ways," collected dues until he felt like J. P. Morgan.

After lunch the delegates inspected the laboratories and watched with interest the numerous demonstrations made in the several departments.

At 3 o'clock the convention work was again taken up. At 6 o'clock the convention adjourned to the Seventh Avenue Hotel for supper, after which section Q meetings were held in various parts of the hotel.

Wednesday morning the convention was again divided into two sections, and the convention was not adjourned until nearly 2 o'clock.

During the course of the convention the following thirty-seven new associate members were elected:

H. E. Covan, St. Louis, Mo.; Chas. Stolp, Chicago Heights, Ills.; Arthur E. Boggs, Marble Head, Mass.; Wm. H. Artz, Dayton, Ohio; Albert E. Smith, Trenton, N. J.; John H. Gregore, Chicago, Ills.; Davis A. Cable, Bessemer, Pa.; W. L. Hamilton, Mt. Savage, Md.; B. F. Burns, Renton, Wash.; Milton F. Beecher, Mason City, Ia.; W. M. Claffin, Columbus, Ohio; John Clark, Long Island City, N. J.; T. W. Garve, Columbus, Ohio; L. B. Godfrey, Lake Placid Club, N. Y.; Ralph E. Good, Patton, Pa.; Jos. Keele, Ottawa, Can.; J. L. Lambe, Findlay, Ohio; W. B. Loutham, East Liverpool, Ohio; T. G. McDougal, New Lexington, Ohio; R. H. McElroy, Dayton, Ohio; Paul S. McMichale, Auburn, Wash.; J. W. Milligan, Findlay, Ohio; Elizabeth G. Overbeck, Cambridge City, Ind.; Geo. M. Raymond, Dayton, Ohio; Wm. A. Rutledge, Champaign, Ills.; Felix Singer, Bunzlau, Germany; Al L. Sollon, San Francisco, Cal.; John B. Yowell, Champaign, Ill.; John A. Speicker, Salt Lake City, Utah; Albert S. Zopfe, Findlay, Ohio; John P. McIntyre, McKeesport, Pa.; Alfred Montby, Alfred, N. Y.; Robert D. Landrum, Lawrence, Kas.; N. Fujiye, Osaka, Japan; O. F. Wauka, Clayton, Wash.; Forest K. Pence, Zanesville, Ohio; R. E. Myers, Bloomfield, N. J. This brings the total membership up to 377, the largest in the history of the society.

Before the convention was adjourned, it was decided that the next annual convention should be held in Trenton, N. J., while the mid-summer meeting would be held at Akron, Ohio.

The following gives brief reviews of the most important papers read before the convention:

"A Plea for Bone China," by Charles F. Binns, Alfred, N. Y. In this paper Prof. Binns advocated the manufacture of bone china as the best means of meeting English competition in table service, and gave a detailed description of the process.

"Some Glost Losses in the Pottery Industry and Their Correction," by A. E. Mayer, Beaver Falls, Pa. The paper told of the causes of losses in the glost kiln at different stages and gave possible remedies.

"The Requirements of Pottery Materials," by H. E. Ashley, Pittsburg, Pa. This paper contained a detailed consideration of the various materials used in bodies and glazes, showing those points likely to come up between dealer and consumer, those which are likely to occasion irregularities in the manufacturing processes, how these are tested and what allowances should be made for same.

"The Distinctions in the Grading of White Wares in Commerce," by Charles Weelans, Trenton, N. J. This paper advocated the adoption of specific standards and was followed

by a long discussion which ended with the appointment of a committee to make specifications. Mr. Weelans was made chairman.

"Moulds," by Herford Hope, Beaver Falls, Pa. The subject matter of this article dealt with the life of moulds, the causes for their wearing out and suggested remedies for common defects, concluding with a general description of mould making.

"Additional Notes on Sagger Making and Manufacture of Dust Pressed Wares," were the titles of two interesting papers read during the practical potters session by George Sincoe, of Trenton, N. J.

"Brick Drying From an Engineering Standpoint, With Notes on a Double Deck Brick Dryer," by D. T. Farnham, Renton, Wash. As the technical end of this subject had been pretty fully covered, the writer treated particularly the engineering aspect of the subject. This included description and efficiency of different sorts of fans and blowers run at varying speeds. The matter of dimensions of the waste heat ducts, flues and openings into the tunnels was briefly taken up, together with the rules and formulae which govern the flow of air through such ducts and openings. The author emphasized the importance of these formulae by giving practical examples from his experience. The second part of the paper described the double deck dryer constructed at the Renton plant of the Denny-Renton Clay and Coal Company, of Seattle, Wash., and showed briefly how the theory of the first part worked out when applied in practice. The paper was illustrated by lantern slides.

"A Method of Testing Clays for Paving Brick Purposes," by George H. Brown, Pittsburg, Pa. This paper advocated that, in order to make possible the testing of shales and clays for paving brick purposes without going to the heavy expense of making extensive and costly practical tests, it is deemed advisable to make the clays to be tested into discs $3\frac{1}{2}$ inches in diameter and $1\frac{1}{2}$ inches thick, which are burnt to their best maturing temperature and tested in a rattler. The rattler has been standardized by using discs made from the best known American paving brick shales.

"Note on the Preheating Treatment of Clays," by A. V. Bleininger, Pittsburg, Pa. This was a resume of the work done in determining the change brought about by the heating of clay as it comes from the bank in a rotary or other type dryer to about 400 degrees Fahrenheit and then using it in the usual way. This treatment reduces the drying shrinkage and drying loss, thus making possible the use of certain clays which it is almost impossible to dry under ordinary conditions. The change in the state of the clays on drying in some materials takes place rapidly, in others slowly. In the case of the former there is greater danger of exceeding the temperature limit than in the latter. Preheating decreases the amount of water needed to develop plasticity, but it also diminishes the amount of shrinkage water, while the pore water is increased. This interchange of shrinkage and pore water may reach such a stage that the porosity becomes too great. In this case the fire shrinkage is liable to become too great, thus causing kiln cracking. Very plastic clays are improved in their working behavior by this treatment, but doubtful materials may become quite difficult to work and require perfect lubrication.

"The Selection of Explosives for Use With Materials of Varying Physical Qualities," by Dr. W. O. Snelling, Pittsburg, Pa., was a most interesting paper, covering the subject very thoroughly and resulting in a lengthy discussion on same.

"The Manufacture of Enamel Brick, With Some Investigations of Enamel Brick Slips," by R. T. Stull, Urbana, Ill. This was a discussion of the different methods of manufacturing enameled brick, giving a treatise on causes of defects and remedies illustrated by the results of nearly 500 different enamel brick slips applied to leather hard bone dry bodies burned at three different temperatures, cones 4, 6 and 8. The results showed that crazing of the slips was caused by too high flint, crazing decreased with increase in clay and increase in spar; American materials seem to be best suited for slips applied to biscuit body. English materials best suited to leather hard body.

"The Warping of Roofing Tile Clays," by W. G. Worcester, Columbus, Ohio. This was a study of the drying and burning shrinkages in comparison to their warpage resulting

in the facts that drying shrinkage bears little if any relation to warpage, while burning shrinkage in a general way does bear a relation to their warpage. High fire shrinkage gives high warpage. The principal feature of the paper was a comparison of the porosity of burned trials to their warpage, samples being shown. Low porosity is not necessarily followed by high warpage, this differing with different clays. In the experimental work, Mr. Worcester used batches of all roofing tile clays in use in this country and employed a unique method of testing warpage by supporting thin bars of clay upon fire clay knife edges which gave deflection of the trials, showing very compliable results.

"The Relation Between Porosity and Crushing Strength of Clay Products," by A. V. Bleininger, Pittsburg, Pa. This paper told of the experimental work carried on in the laboratories during the past year along this line. A long series of brick tests were made by determining the water absorption and the crushing strength of the bricks which were placed in the machine on edge. Twelve specimens were used of each absorption grade. The resulting curve was practically a straight line. In testing clay cylinders the effect of the lamination structure upon the crushing strength was observed in a striking manner. It is advocated that bricks be tested on edge in place of the old way of testing flatwise, the bricks to be cut in halves by means of a sharp chisel. If a transverse test is made, the pieces resulting from this test may be used.

"The Technical Control of the Colloid Matter in Clays,"



Alfred Yates, Shawmut, Pa.

by H. E. Ashley, Pittsburg, Pa. This paper represents the results of an investigation that has been carried on throughout the entire year in the laboratory of the Survey by Mr. Ashley. He believes that at last the chemistry of clays has been reconciled with their working properties, and that the broad foundation laid by this year's investigations will greatly facilitate the solution of many hitherto perplexing problems of clay working. The matter is so highly technical that it would only be understood by competent chemists. It may be said, however, that the colloid matter of clays has a very close parallelism in its behavior to the chemical behavior of fats and soaps. These principals have already been applied to the mechanical analysis of clays and to the casting process of manufacturing refractory wares.

"Boron in the Glaze Formulae," by Dipl. Ing. Felix Singer, Bunzlau, Germany. This was one of the most interesting papers read before the convention. Mr. Singer thinks boron belongs in the same class with alumina and not with silica. In the paper he submitted proofs on seven different lines of argument, most important of which was the fact that boron zeolites could be made exactly compliable with alumina zeolites and have all the same properties.

"Opalescence and the Function of Boric Acid in the Glaze," by R. T. Stull and B. S. Radcliffe, Urbana, Ill. In this paper the authors told of constructing a group of glazes in which the division line between clear and opalescent glazes

was determined. This line is on a total oxygen ratio of one to two. Boric acid when added to basic glaze increases crazing, but when added to a high acid glaze decreases crazing. Opalescence is caused by the formation and precipitation of some silicate of boron in suspension. This paper was illustrated by means of charts and trials.

"A Study of the Vitrification Range and Di-Electric Behavior of Some Porcelains," by A. V. Bleininger, Pittsburg, Pa. This paper told the results of an elaborate series of tests which showed the vitrification areas from four clays used in pottery making. By means of tri-axial diagrams, the vitrification temperatures, per cent. of flint, clay and feldspar, and also the electrical resistances, were shown graphically. As far as the tests showed, di-electric strength is independent of chemical composition.

"The Contraction of Glazes and Glasses on Solidifying as a Cause of Crazing," by H. E. Staley, Columbus, Ohio. In this paper the author declared that the exact measurement of the effect of various fluxing oxides on the coefficient of thermal expansion of glasses does not agree with Seger's rule for reducing crazing. Many cases of crazing seem to occur just as the glass is turning from a viscous fluid to the solid state. It has been determined by several investigators that glasses contract to a considerable extent at this stage and that the higher they are in fluxing oxides the greater is the contraction. Seger's rule stops crazing of this sort and so may be considered a rule for reducing the contraction of



Hervey Haigh, Catskill, N. Y.

glasses and glazes on solidifying rather than for reducing the coefficient of thermal expansion of the glaze when it is a solid glass.

"The Requisite Properties of Glass for Mechanical Manipulation or Machine Operation," by R. L. Frink, Lancaster, Ohio. The author took up constituents of glass that would produce required properties to be used in moulds in blowing, in ladling and dipping and in the drawing of sheets and cylinders.

"Some Chemical and Physical Changes in Clays Due to the Influence of Heat," by J. M. Knote, Urbana, Ill. The chemical and physical changes in clays at temperatures below 1,000 degrees C. were investigated and some interesting changes in chemical composition and physical properties were observed which tend to explain the reactions of calcined clay with lime and water, etc. The changes in fire clays above cone 11 were also investigated. This paper was illustrated with lantern slides.

"A Note on the Viscosity of Clay Slips Determined by the Clark Apparatus," by A. V. Bleininger. A torque of a paddle revolving in various clay slips at a constant speed has been determined and was found to grade from clays as to their relative plasticities. The constant obtained does not measure viscosity, but some complex function which includes a factor expressing the plastic behavior of clays. For purpose of comparison, the curves resulting from the torques for various contents of clay are used.

"The Behavior of Fire Brick Under Load Conditions at a Temperature of 1,300 C.," by A. V. Bleininger and G. H.

Brown, Pittsburg, Pa. The fire bricks in this test are placed in the furnace on end and a load of 75 pounds per square inch is applied. Fire brick suited for withstanding load conditions when heated to 1,300 degrees C. in this furnace, should stand up under the above load without rupture. In addition, refractory tests are made and the porosity, crushing strength when cold and shrinkage on returning to cone 12 are determined.

"Barium in Glass," by R. L. Frink, Lancaster, Ohio: In this paper the author told of the properties of barium in glass showing the good and evil effects.

"Testing Sheet Steel Enamels," by J. B. Shaw, Grand Rapids, Mich. This was a study of testing. The author reviewed the paper of Edward Orton, Jr., read before the convention the previous year, and showed the results from experiment with a series of enamels and enameled pieces of steel.

"Tests of Sagger Mixes," by H. E. Ashley, Pittsburg, Pa. This was a detailed study of a number of the clays commercially available for making saggars, also a few refractory materials that have been occasionally proposed as ingredients of saggars. Bit stone, sized sand and ground ware were all found unsuited for sagger mixes. The best clays for this should have high colloid content and not be fine grained. A small proportion of sandy clay is advantageous.

"The Temperatures Theoretically Available in Kilns From Coal and From Producer Gas," by Ellis Lovejoy, Columbus, Ohio. The author took data from Bulletin 48, U. S. G. S., coal tests and from these were figured the temperatures that were possible to get in kilns under commercial conditions. The figures show producer gas is not practical for periodic kilns because it is impossible to get temperature sufficient for burning ceramic ware. Its use will be limited to regenerative kilns with the producer close to kiln, so a large per cent. of initial heat can be saved and also in which air for combustion is preheated by the cooling ware. It shows there is no economy in producer gas from fuel standpoint, and that value of producer gas is the great economy of handling the fuel in the ash, in the better distribution of the heat and better results.

"Some Problems in Ceramic Education," by R. Guy Cowan, Cleveland, Ohio: The author declared that only one phase of ceramic education had been met with any thoroughness, that being the scientific, and showed the great need of the other two phases—the trade and art phases and methods of meeting them. He spoke of the new type of school that would greatly influence future ceramic work, namely, the technical high school.

"New Type of Laboratory Kiln," by R. T. Stull and J. M. Knote, Urbana, Ill. The paper described a small muffle furnace designed to secure a rapid raising of the temperature and at the same time getting an even distribution of heat. It is essentially a down-draft, muffle kiln fired on the rotary flame principle and so fixed as to preheat the air for combustion by the waste gases of the kiln.

Other papers on the program, most of which were read by title, were as follows:

"Additional Notes on Pug Mills," by George Simcoe, Trenton, N. J.; "A Purchasing System," by H. E. Ashley, Pittsburg, Pa.; "Discussion on Facts and Fallacies of Glass Manufacture," by F. Gelsthorpe, Ford City, Pa.; "Chemical Control in Glass Manufacture," by Alexander Silverman, Pittsburg, Pa.; "The Dehydration Temperatures of Some Clays," by H. E. Ashley, Pittsburg, Pa.; "On the Determination of the Hydrated Silicia Acid of Clays," by F. H. Pence, Lanesville, Ohio; "A Preliminary Note on the Relation of the Tensile Strength and Transverse Strength of Clay," by H. Ries and F. W. Allen, Ithaca, N. Y.; "The Heat Balance of a Plate Glass Furnace," by F. Gelsthorpe, Ford City, Pa.; "Mineral Dust and Its Relation to Workmen's Health and Mortality," by F. L. Hoffmann, Newark, N. J.; "The Bricketting of Fuels," by Charles L. Wright, Pittsburg, Pa.; "The Main Considerations in the Development of the Maximum Strength of Concrete," by R. L. Humphreys, Pittsburg, Pa.; "The Relation Between the American Ceramic Society and the U. S. Potters' Association," by Ernest Mayer, Beaver Falls, Pa.; "A Fire Test for Sand-Lime Brick," by T. R. Ernest, Champaign, Ill.; "Some Experiments on Some Grog Mixtures," by C. W. Parmelee, New Brunswick, N. J.

FIFTH ANNUAL CONVENTION NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.

HARMONY SPELLED with a large H characterized the work and proceedings of the N. P. B. M. A. Secretary Blair was the first of all the brick men to arrive at Pittsburg. His labors really began the day before Monday, and the days and nights that followed were most strenuous for him, but the work accomplished was so satisfactory that he and his associate boosters smiled and smiled right through to the finish.

The meetings of the association were held in the Assembly Hall of the Fort Pitt, a comfortable, cozy room, where their deliberations were pursued undisturbed up to the final session. A number of interesting papers were presented, most of which referred to the details of the work of promoting the use of brick pavements. Some of them are of general interest and will be given a place in the columns of THE CLAY-WORKER in later issues.

The most important work accomplished was the reorganization and a revision of their constitution, which is preliminary to the incorporation of the association, which will occur as soon as the new Board of Directors can convene and perfect the final preliminaries. The following constitute the board for the ensuing year.

BOARD OF DIRECTORS N. P. B. M. A.

J. W. Hall, Westport Paving Brick Company, Baltimore, Md.
W. W. Winslow, Indiana Paving Brick and Block Company, Indianapolis, Ind.
Eben Rodgers, The Alton Brick Company, Alton, Ill.
C. C. Barr, The Barr Clay Company, Streator, Ill.
C. M. Crook, Bessemer Limestone Company, Youngstown, Ohio.
G. O. French, Big Four Clay Company, Canton, Ohio.
R. L. Winslow, Clearfield Clayworking Company, Clearfield, Pa.
J. W. Robb, Clinton Paving Brick Company, Clinton, Ind.
W. P. Whitney, Danville Brick Company, Danville, Ill.
C. J. Deckman, Deekman-Duty Brick Company, Cleveland, Ohio.
C. H. Doan, Athens Brick Company, Columbus, Ohio.
E. H. Goodrich, Mack Manufacturing Company, Philadelphia, Pa.
J. G. Barbour, Metropolitan Paving Brick Company, Canton, Ohio.
F. L. Manning, Peebles Paving Brick Company, Portsmouth, Ohio.
F. G. Matteson, Purington Paving Brick Company, Galesburg, Ill.
W. M. Lasley, Southern Clay Manufacturing Company, Chattanooga, Tenn.
Henry Hasbrouck, Sterling Brick Company, Olean, N. Y.
Will P. Blair, Terre Haute Vitriified Brick Company, Terre Haute, Ind.
R. D. Culver, Wabash Clay Company, Veedersburg, Ind.
O. N. Townsend, T. B. Townsend Brick and Construction Company, Zanesville, Ohio.
M. E. Gregory, Brick, Terra Cotta and Tile Company, Corning, N. Y.
G. E. Carlyle, Carlyle Paving Brick Company, Portsmouth, Ohio.
F. M. Brady, Cleveland Brick and Clay Company, Cleveland, Ohio.
B. A. Inglis, Copeland-Inglis Shale Brick Company, Birmingham, Ala.
C. H. Kepler, Saginaw Paving Brick Company, Saginaw, Mich.

OFFICERS ELECTED.

President—Charles M. Crook, Youngstown, Ohio.
Vice-President—J. W. Robb, Clinton, Ind.
Treasurer—C. C. Barr, Streator, Ill.
Secretary—Will P. Blair, Indianapolis, Ind.

The reports of the Secretary and Treasurer showed that the association was in excellent condition financially, and it is predicted that before the close of the year practically all of the paving brick manufacturers in the United States will be enrolled on the membership roster, and that as a result the work for the following year will be of even more benefit to the industry than that of the past.

The following resolutions were adopted unanimously:

RESOLUTIONS ADOPTED BY THE N. P. B. M. A.

We, the National Paving Brick Manufacturers, in annual convention assembled, recognize the fact that our Association was formed primarily for financial benefit, but most heartily appreciate the further fact that a value unsuspected when organization was had has developed into an important feature—that of warm friendships and good will, one for another. By reason of growth of this sentiment our organization is in a measure analogous to a large harmonious family and, as an absent member is missed from the family circle, in imagination followed in his travels, sym-

thized with in misfortune, and his return looked forward to with fond anticipation, so we regard those of our members with whom we have been closely identified, and who are absent from our fifth annual meeting. Therefore, be it

Resolved, That we deplore the absence of our efficient President, W. S. Purington, and Board Member, Charles J. Deckman, and send warmest greetings and best wishes to them. In the past we have been indebted to both for valued guidance and council and recognize that their unselfish efforts have been important factors in our growth and success; that we most earnestly hope for their speedy recovery and return with renewed health and unimpaired vigor to their work.

Resolved, That we are pained to learn of the accident which prevents the attendance of our associate, Mr. Eben Rodgers, and hope for him prompt and complete recovery.

Resolved, That we regret to learn of the loss by fire of the plants of the following members: The Windsor Brick Company at Akron, Ohio; the Hammond Fire Brick Company, Fairmount, W. Va.; the Preston Brick Company, Hornell, N. Y., and trust that in either case the loss is not such as will cause serious embarrassment or long delay in the resumption of their operations.

Resolved, That it is with mingled feeling of regret and congratulation we view the close of service with this body of Mr. E. L. Middleton. Regret in that we feel we are losing the service of a man whose effort has been of great value. Congratulation to him and his new associate, believing the relation being established is a tribute to Mr. Middleton's unquestioned ability, and to Mr. Barr's well-known good judgment. To both we wish a long and prosperous career.

As the big majority of American citizens are loyal and steadfast in their friendships and are overwhelmingly in favor of clean living and clean business methods, so the National Paving Brick Manufacturers' Association has shown, in ever increasing degree,



Spencer Duty, Cleveland, Ohio.

these ennobling characteristics of the great people from which its membership is drawn.

Therefore Be It Resolved, That, representing as we do, a paving material whose merits have only to be intelligently presented to win everywhere lasting recognition, whether for streets or roadways, we now, in national convention assembled, in honor pledge ourselves, both as individuals and as an association, to maintain the high standard for which, in the public mind, we are coming to stand, leaving to those of our competitors, who care to use them, the filthy weapons of boodle and booze.

COMMITTEE ON RESOLUTIONS,
C. M. CROOK, Chairman.

Owing to the unavoidable absence of President W. S. Purington, due to ill health, the deliberations of the association were presided over by Vice-President J. W. Robb in a manner that demonstrated that he is a graduate of the Hoosier school of diplomacy. In turning the gavel over to his worthy successor he made a stirring appeal for the same earnest, harmonious work that characterized the work during the convention, and closed with the following pertinent advice:

"Do not let us weary in well doing, or dissipate our time or energy in quibbling over minor matters, but all try to look upon the work of this association in a liberal way, willing to do the most good to the greatest number, realizing that each of us must make some sacrifices and stand some defeats in the interest of the other, and each and every one put his shoulder to the wheel in the belief that we are the taxpayer's friends, and fight for honest methods in expendi-

tures of the people's money, believing that our material gives the greatest returns of any paving material now known."

These are worthy sentiments and, observed by the members generally, will lead the N. P. B. M. A. on to still greater power and influence, though it has already been a power for good in the land. Indianapolis will continue the headquarters of the association and the new Board of Directors will meet there the first week in March.

CONVENTION ECHOES.

Liked the Bulletin Board.

DEAR MR. SECRETARY:

The little bulletin board at the Fort Pitt Hotel at Pittsburgh impressed the writer as being a very practical affair for the manufacturers, and it enabled the prospective purchasers to get a line on the ones whom they desired to see. This year has proven more satisfactory and successful than any previous year, and we lay it to the little bulletin board arrangement.

My purpose in writing you is that I believe that the National Brick Manufacturers' Association should have and own an arrangement similar to this, which could be conveyed and



John C. Boss, Elkhart, Ind.

carried to the location wherever the convention is held, as this is the first hotel that I ever saw that was equipped along this line in a like manner.

This would also avoid the necessity of having the hotel lobby plastered with advertisements, and it would permit or enable the brickmakers to find the different machine manufacturers more readily, and would prove a very popular affair.

Respectfully yours,

Elkhart, Ind.

JOHN C. BOSS.

Pittsburg Convention a Record Breaker.

MY DEAR RANDALL:

On reaching home and reviewing the work of the convention, it occurs to me that several published questions were omitted owing to lack of time. I presume these were asked in good faith; if so, would it not be feasible to turn the unanswered questions over to some member or members for reply, publishing the answers when received.

I believe the Pittsburg convention was the best I ever attended, a record breaker in registration. It seemed to me that an unusually large attendance was had at each session. I was impressed with the number remaining and keen interest displayed up to the final adjournment.

I am particularly well pleased with the action taken for a

vigorous campaign exploiting bricks, which action, if seconded, as it should be, by all interests, will enormously increase every branch of the brick business.

Yours very truly,

Youngstown, Ohio.

CHAS. M. CROOK.

Bloomfield's Ambition.

MY DEAR RANDALL:

Home again after attending one of the most successful conventions ever held by the N. B. M. A., and I am looking forward already to the next one, it matters not where it may be held. Some of my Jersey friends would like it to be held in Atlantic City, but as we Jersey men have for twenty-four years accepted the hospitality of our friends, I do not want to see the convention in this state until we have raised a fund sufficient to make the Atlantic City meeting so successful that it will never be forgotten so long as the N. B. M. A. lasts, which I trust will be for all time. Sincerely your friend,

CHARLES A. BLOOMFIELD.

Metuchen, N. J., February 16, 1910.

The Convention Commendable in Every Respect.

DEAR RANDALL:

On coming back to my office and thinking the convention week over, I have been impressed with the general excellence of the twenty-fourth meeting of the Association. There are a number of things about it which well deserve commendation. Among these I want to mention the convention hall and exhibit room. I was greatly pleased by the way this long-discussed proposition worked out, and I think we shall make a mistake if we ever go back to the plan of having separate rooms for these two purposes. Certainly if we wish to have a dignified program, and speakers willing to prepare what they have to say, we have got to give them an interested audience, and no speaker is able to hold an audience against the manifold attractions of an exhibition room just around the corner. The use of the single hall obviates this trouble, and my! wasn't that hall a beauty? Never have I attended a convention of any sort of a body, in a setting so gorgeous as that of the "grand salon" of the Fort Pitt Hotel. It is worth something to have been a part of such an assemblage in such a place.

The Fort Pitt seems to me a very fitting place in other respects, and it lends itself to the needs of the convention crowd admirably, and really the N. B. M. A. is beginning to look like a hen with chickens, there are so many side-shoots and filial organizations that it is no small problem for any hotel to take care of the clayworkers in convention week. In one sense I am sorry for this, for it may restrict the number of places where we may be successfully entertained, but it is a condition which we have to meet, and not a theory, and the successful meeting of it will require careful consideration on the part of yourself and the Executive Committee.

Right in this connection I want to say that I hope Atlantic City will be favorably considered for the next meeting of the Association, and Atlantic City is one of the places in this country that can give us accommodations equal to those we have last enjoyed. The N. B. M. A. and its affiliated branches can shelter under one of a number of single roofs at the Jersey coast resort.

Another feature of the convention which I thought was most attractive was the choral music between the feasting and the speaking. We were fortunate (perhaps many of us do not know just how fortunate) in being permitted to hear the beautiful rendition of some of the world's fine music from the notable organization which sang for our pleasure, and it certainly put us all in a proper frame of mind to listen with attention to the words of wit and eloquence which the speakers had for us. No abler body of speakers has ever yet addressed a gathering of brickmakers.

I am glad that we have come down to a paid banquet basis. Nearly all other organizations have reached that position, and it is high time that we "arrive" also. As long as it remains a complimentary affair, it will limit us from going where we please and doing what we want to do, and I hail this occasion as a long step in the right direction.

Of the program I can say comparatively little, as my own

engagements prevented me from giving it the attention which I wished and which I know it deserved. The few numbers which I did hear were excellent. No matter whether one approves of Mr. Frothingham's argument or not, one cannot deny the general eloquence and ability with which he presented a winning case. I enjoyed very much the paper by Mr. P. E. Demmler, on the subject of the flow of clay through dies. The N. B. M. A. would be better off if more experimental work like this were introduced at its meetings.

All in all, I shall look back at the Twenty-fourth Convention, which, by the way, is my sixteenth, with a great deal of pleasure.

With kind regards, I remain,

Yours very truly,

EDWARD ORTON, JR.

Columbus, Ohio, February 17, 1910.

Traveled Three Thousand Miles to Attend and Is Repaid.

MY DEAR RANDALL:

The convention was such a success that I feel that you should know that one member who came three thousand miles to attend it felt amply repaid.

The man who runs a clay plant—no matter how extensive his experience—has problems to meet almost daily which it would be a great satisfaction for him to talk over with somebody, if only for the pleasure of showing the other fellow he was wrong. The man who is progressive, who grows, and who keeps abreast, or a little ahead, of the times, saves up the most vital of these problems and brings them to the convention. Perhaps the answer comes in one of the papers read or in one of the discussions started by one of the papers, but more likely it comes in one of the little talks held in out of the way corners of the hotel corridor.

The new ideas gained and the realization that your troubles are not the only troubles, that possibly yours are pretty small compared with the other fellow's, give a man a stimulus that sends him back to his work for another year prepared not only to meet his problems better equipped, but also with a better sense of the relative value of things.

The proof of this is that the most progressive companies are sending their men to the conventions with such great regularity. Personally, I have a feeling that the progressiveness of a company may be said to increase directly as the distance traversed by the men sent, but in this I may be a prejudiced party.

However, I feel that all who attended the twenty-fourth convention at Pittsburg will agree with me that it was a great success, and that great credit is due to the men who engineered it to such a success.

Yours very truly,

Seattle, Wash.

DWIGHT L. FARNHAM.

Publicity for the New Association.

DEAR MR. RANDALL:

I am home and in the harness again. Have enjoyed the Pittsburg convention.

I enclose a clipping from a daily Quincy paper, referring to our work at the convention. It proves that the young tree (publicity) is already beginning to bloom. I for one am satisfied that the fruit of this young tree will ripen before the next convention rolls around, and when we meet again we will all enjoy its flavor and taste.

Yours very truly,

Quincy, Ill.

JOHN T. HUMMERT.

Hopes to Meet Next Year in New Orleans.

DEAR MR. RANDALL:

I am pleased to inform you that I arrived safely at Shawmut and am within the sound of the old clay mill once more.

I must congratulate you upon our Pittsburg convention, as I think it far excels any of our previous conventions. All papers and discussions were very interesting and could not but help all students of the craft. I think the exhibitions of the American Clay Machinery Company are the wonder of the age, and believe the next step Mr. R. C. Penfield had better take is the aeroplane, and I think if he could work this

out to pick up the bricks at the kilns and deliver them on the scaffolds of the building we should have the thing complete. If he could only substitute building bricks for so much steel construction at the present time it would increase the demand for bricks, and with his modern appliances could be handled at such a cost that I think would make it within reach of all building operations. Is it not the case that these modern constructions of steel are not desirable, as whatever covering is put on the steel there is an absorption of oxygen, also the vibrations of the building will crack the coating to more or less extent, and if the iron oxidizes, are we not building death traps for future generations?

I am pleased the Association decided for all members of the craft to meet once a year in the same city and have no division between face brick and common brickmakers. It is the higher craftsmen by their social intercourse and advice that lead the lower craftsmen to a higher plane; therefore, these rigid lines of distinction should not be recognized. Take, for instance, the great architectural terra cotta companies of this country, representing five or six of the largest factories of the world, including Perth Amboy, which has more kilns than any other works on the globe, and is under the management of one of the brightest terra cotta men known in this business. This gentleman a few years ago was a common brickmaker.

I consider the United States the first nation to establish modern civilization, as no one here is born to position, but all worthy men are on an equal plane, which has produced the results that the average of intelligence ranks far in excess in this country over that in any other known nation of the world.

When it is demanded to create lines of distinction, it is a relic of ancient Rome and a custom which followed every nation up to the constitution of the United States. But I sincerely hope that the time will never come when our Association will permit one man to be placed in a position to laud his superiority over another member of the craft. I think it is perfectly delightful to know that all humble craftsmen can meet in one large body on the plane of equality and approach the fellow members, from the common brickmaker to the scientist, with a cordial greeting. I have been corrected in many ideas that were taught me during my youth and experience has demonstrated some of these ancient customs to be entirely wrong. At the last convention Prof. Orton, that smiling Ohio Dutchman, took the pains to explain to me wherein I was in error, which is nothing more than customary with the highest authorities of our Association.

It was very pleasing to meet the old friends from nearly every state in the Union. One in particular I noticed as bearing a fair resemblance to Abraham Lincoln, was Mr. Kilbourne. We one and all regretted the absence of our friends, D. V. Purington, W. S. Purington and W. D. Gates, the Horace Greeley of the Association.

Wishing you continued prosperity and hoping we will all live to meet at our next convention at New Orleans, with kind regards, I remains,

Yours very truly,

Shawmut, Pa.

ALFRED YATES.

Convention Experience Pleasant and Profitable.

DEAR MR. SECRETARY:

The convention has been an exceedingly pleasant and profitable one for myself and Mr. Koch, and I wish to thank you most sincerely for everything you have done to make our stay in Pittsburg agreeable.

I think few of the members have realized how much work you have put in the preparation and the running of this convention. Everything went so smoothly that we were apt not to realize that it simply was the result of a carefully laid out plan and proper watching of the details. I have spoken with many members of the N. B. M. A., some on the last day and some on my return trip and after my return, and without exception they are of the same opinion. I shall certainly not fail to attend the next convention unless I am abroad. I realize more and more every year that there is an enormous difference between actually being there and simply reading the proceedings. I am sorry I was unable to attend all the sessions, owing to the time required for the meetings of the

Building Brick Association of America. I think we all realize that these meetings did interfere somewhat with some of the business sessions of the convention; but, on the other hand, the successful organization of this new association is a direct outcome of the convention, and perhaps the most important work accomplished.

If you should come west this summer, let me know in time, and I shall be pleased to do everything I can to make your stay in St. Paul pleasant.

Sincerely yours,

W. SIWART SMIT.

St. Paul, Minn., February 16, 1910.

One Member's Viewpoint.

DEAR FRIEND RANDALL:

Upon my return home from the convention at Pittsburg, I take the first opportunity I have of writing you regarding the convention from my viewpoint.

I am thoroughly convinced that this was the best convention that I have ever attended, and I think that I express the opinion of every one who expressed themselves to me. We were certainly very nicely taken care of in every respect. There seemed to be a general feeling of good will and hospitality on all sides, and such conventions as these cannot help but build up the N. B. M. A. to an Association that will be looked upon with envy by every other craft in the United States.

I trust that yourself and family reached home in due time and in good health, and wish to extend to you my thanks for your many courtesies during the convention.

Very truly yours,

Bradford, Pa.

W. M. HODGES.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.

WHILE THERE has been a perceptible falling off in the amount of building planned as compared with the same weeks of last year, the present period of semi-dullness is by no means discouraging to building material manufacturers and dealers.

It may be attributed to the weather—and then, again, it may be attributed so far as the first few days of February are concerned, with the hegira to Pittsburg for the great annual convention of the National Brick Makers' Association. Even if the latter were a reason, it is a safe wager that nobody would kick much, and as for the weather, satisfaction over the phenomenal activities of last year has not yet worn entirely off, and a moment's thought serves to convince even the pessimist that affairs last winter were away out of the ordinary and that things are not altogether dead now. In fact, the season is considered quite normal.

The W. F. Hall Printing Company has plans out, prepared under the direction of Joseph E. Tait, for the construction of a new addition that will double the present plant, and the total cost of the complete structure will exceed \$1,000,000. It will be among the largest plants of its kind in the world, having a floor area of 250,000 square feet. In addition, Rand, McNally & Co. are reported to be about ready to start a new building at a cost of \$1,000,000 at Harrison and Clark streets, running through to LaSalle street and having a north and south frontage of 300 feet. Sears, Roebuck & Co. have let the contracts for the construction of a \$400,000 addition to their \$5,000,000 plant. It will consist in the addition of six stories to the two annexes of the big brick merchandise building which stands in Harvard street between Kedzie and Central Park avenues.

Meanwhile downtown Chicago is fairly filthy from the dust which the builders of skyscrapers are making, and more of these great structures are reported to be coming soon. The Continental National Bank is negotiating for the site of the present Rand, McNally building, which runs through from Adams to Quincy streets between LaSalle street and Fifth

avenue, and if these negotiations are successful the construction of a twenty-story bank and office building at a cost approximating \$3,500,000 is foreseen.

By April 1 it is expected that most of the brick yards about Chicago will be equipped with a new device in the nature of a brick setting machine. It is a labor-saving device designed to lift 1,000 bricks from yard cars to kilns at one operation, or to be used in the same manner for loading freight cars with the finished product. As a result the laborers have raised the cry that the Penfield patent is going to displace nearly 50 per cent. in the number of employes about the brick yards. William Schlake, president of the Illinois Brick Company, however, pointed out that, while the machines would displace a considerable amount of unskilled labor, they would necessitate the employment of a number of electricians and other skilled mechanics. There is a talk of a demand for more pay on the part of the brickmakers' union as a result of the introduction of the machines when the present contracts expire on May 1.

SCRIP.

BRICK NEWS FROM NORTHWESTERN OHIO.

BUILDING operations have been very light during the past month and as a result there has been no heavy demand for building brick in this section. Bad weather has made outdoor work almost an impossibility, and, taken as a whole, the winter has been the most severe experienced here for many years. The effect is plainly reflected at the office of the Toledo building inspector, where the records show that during the entire month of January there were but thirty-four permits issued for new work, aggregating a total valuation of \$84,760. This has been even lighter than a year ago, when fifty-five permits were issued, aggregating a valuation of \$110,127. The Collingwood Brick Company is the only concern in the city of Toledo which is making brick at the present time, although several of the other yards will be operating within a few weeks again. While stocks of building brick are not abnormally large, there are now plenty on hand to meet the moderate winter demand. The Ohio Brick Company report that they have no building brick on hand to sell and that they are substantially cleaned up in that line. The concern still has plenty of pressed brick, with but a moderate demand at this time. From the Hydraulic Press Brick Company and several other concerns comes the report that there is a brisk out-of-town trade and has been all winter, but that in Toledo proper but few brick are moving. The smaller towns and cities through this district are making extensive preparations for a large amount of building the coming year. In Toledo brick men express the opinion that, while the spring may be a trifle late in opening, indications point to heavy building operations. There is much figuring and planning and it seems probable that if any material part of it develops into actual business the brick concerns will be taxed to care for the demand for building brick before the season has advanced very far. Prices are holding up well, quotations being all the way from \$6.50 to \$7.50 for city delivery and from \$5 to \$6 on cars for outside shipment. So far as paving block and sewer pipe are concerned, the prospects appear splendid for a large run of trade as soon as spring opens. The indications point to an exceptional call for drain tile, large quantities of which will be used in the rural districts. Municipal work will be fully as heavy as last season, and many street paving contracts and sewer jobs are now only waiting for the coming of spring. On the whole, the prospect is very bright and clayworking institutions of all kinds are looking forward to what they expect will be a prosperous period. Tile manufacturers from the rural districts of northwestern Ohio met last week at the Boody House, in Toledo, for the purpose of forming an association. Manufacturing methods and general conditions of the clay tile industry received considerable attention at the meeting. Thirty-two tilemakers attended the session, which was held behind closed doors. Leo J. Childs, of Findlay, Ohio, acted as chairman of the meeting, and C. D. Powell, of Hoytsville, Ohio, was made secretary.

T. O. D.



SUCCESSFUL UNDERTAKINGS.

We clip from the Farm Journal the following excerpt: William Carlton, one year ago, purchased a large tract of what was supposed to be worthless swamp land, and at once set to work to drain it. Everyone laughed at him, as they supposed nothing could grow on such land.

Last spring he planted a large field of the land in potatoes and in the fall harvested one of the largest crops of tubers ever seen outside of Aroostock county. The potatoes were dug by machinery and as many as one hundred bushels were taken from a single row. In all, he had a yield of 9,000 bushels of as fine potatoes as ever grew in the state of Maine.

The land when underdrained seems to be particularly adapted to grow potatoes. Mr. Carlton will make money enough this year from this crop to pay for his entire farm.

Besides the use of the land for profitable crop growing in the years to come, it is a very profitable investment with a promising outlook, is it not? There are thousands of farmers in this broad land of ours that have a similar chance for success, larger or smaller, possible on their own farms or adjoining them if they could only see it and get into the habit of bringing things to pass by doing things right.

At the close of the civil war Mr. S. J. Wooley, of Hilliards, Ohio, bought a tract of 400 acres of swamp land at \$5 per acre (if we remember correctly) and thoroughly underdrained it an average depth of three and one-half feet, the main drains being from four to five feet in depth. The entire tract of land is drained by one outlet through an 18-inch tile. This farm has been wonderfully productive since being brought into cultivation and would probably sell for more than \$100 per acre. There are many farms which have waste places which might be drained out and made very profitable for crop production if the owners would only see them or if they do see them, have not snap enough to make good in reclaiming them.

Go Down and Get It.

Horace Greeley said, "If a man had fifty acres of land and wanted fifty more, go down and get it." But the question may come to some, "How can we go down?" We answer, thoroughly tile drain the land that needs it, and much of the land now in cultivation, especially clay soils, needs underdrainage. By tile draining the land deep we get down to the underlying fifty acres.

Emerson said, "There are farms underneath our farms that we know not of until we tile drain the upper farm." It is very clear to any one that thinks along practical lines that if we are using five, six or even eight inches of soil to grow our crops, that if we tile drain in parallel lines two or three rods apart to a depth of three or four feet and thus remove the water of saturation and let the air down into the sub-soil and open up so that the roots of growing crops may penetrate to the depth drained for food and moisture, we get the benefit of the lower farm in crop growing. It is a well-known fact to those who have in this way practical tile drainage on land that had been in cultivation for many years, that, after being drained, the crop yield was doubled or more, compared with former yields. So it is clear that Horace Greeley spoke wisely when he said, "Go down for the other fifty acres."

It is verily true that there are multiplied thousands of acres now in cultivation that do not pay a satisfactory return for the labor expended in the cultivation of the crops that

would, if well tile drained, more than double the present average production. Then why not get at it and have the benefit of the lower farm?

Road and Farm Drainage.

After years of experience and close observation, if we were to sum up as nearly as possible the indispensable condition for permanent good roads throughout the country, we would say fit them up with thorough drainage. Not simply the drainage of the surface into side open ditches, which is important, but in addition the complete roadbed. The foundation for good roads is construction in such a way that no water can percolate through the roadbed and make it soft and spongy to the extent that when the mud gets so deep as to make travel very difficult, or as we frequently say, "the bottom drops out."

In highway construction side open drains are necessary to receive the surface drainage of the roadbed when hard rains come, and so relieve the traveled roadbed of the water and thus prevent the surface mud conditions and aid in keeping the travel way firm, but in order to keep the entire roadbed firm there should be side underdrains on each side of the main travel way and inside three or four feet of the open drains. The under or tile drains will receive the water percolating down into the soil from the open drains and prevent it from getting under or into the roadbed. In the construction of the side drains the size of tile used and the depth and the outlets should as near as possible be determined with the view of the future drainage of the land adjoining and the water likely to shed into the open drains. The land owners likely to need an outlet for their land through the road drains could well afford to add a little money to the cost of larger tile to thus provide them an outlet for the drainage of their own land.

Aside from the drainage of land adjoining the highway, the improvement of the traveled road thus outlined would amply repay the expense and insure in the future a satisfactory condition of the highways.

The writer has had some experience in the past in the construction and keeping of gravel roads in repair, and in our judgment we would by all means prefer side tile drains to insure the permanent betterment of the roads; besides it will not require more than two-thirds of the gravel to make a good road that would be required with no side underdrainage.

A roadbed thus thoroughly drained is good at all points and good or practically so all the year if a little attention is given to the scraping of the roads when they need it to fill up the ruts. In the black soil of central and northern Illinois and elsewhere the side tile drainage of highways has proven to be very satisfactory in the permanent better condition for travel. Besides, the better drainage condition of the highways results in the better drainage condition of the farms adjoining.

IF TRUE WHY NOT?

Years ago Professor Wilson, who is now at the head of the agricultural department at Washington, said of the state of Iowa: "One-fourth more to the productive area of this state can be added by tile drainage. While land was cheap and drain tile was dear, and much of the tile not very good, systematic draining, as an investment, was not generally thought of. It was cheaper to buy a dry acre than to drain a wet one. Conditions have changed, land has gone up in price, and drain tile has gone down. The excellence of our farm lands has called the attention of our capitalists at home and of home seekers abroad to returns from the average acre, and it has advanced. Cheaper money has also the tendency to raise the price of land, and the farmer begins to count the want of possible profits from wet lands that yield but little, if anything, and that disfigure his fields, that take more time to avoid than to cultivate, and are eyesores and miasma-breeding nuisances. Greater skill is evident in the tile yards, better tile are turned out, and more encouragement is held out to the farmer to reclaim his wet acres. The positively wet slough in many places, where there is rapid descent to it, must be underdrained, or

it will drain itself by cutting an open ditch after the grass roots die out. This is a permanent injury to the land that great expense will not remedy; it is a loss of valuable soil that should be put to use.

"Our corn season is short and lands must be made ready to grow the crop as soon as it is planted.

"Damp, cold soils do not warm up soon enough to make the best crops, while they are our finest lands if dried by draining. The grass that grows on undrained, damp lands is not as palatable, nor as rich, as that growing on dryer land, nor do animals graze there until they are compelled to do so by hunger.

"Our state has a considerable per cent. of lands with a hard-pan subsoil. The upper soil is rich enough to grow good crops when the rain comes to suit, but if rains fall in excess they can not sink, and must seep away through the surface soil to lower levels, or be evaporated by the heat of the sun. While the water is getting away by these means the crop is badly injured. No land will pay better for underdraining than these lands. The drains must be put closer together than in the over-plowed lands that have a porous clay subsoil.

"Tile draining will lengthen the season for grazing and crop growing. The dry, warm pasture will grow grass longer in the fall season than wet lands, and the grass will start earlier in the spring."

The facts above presented are unquestionably true of Iowa, and true as well of other states. In this state of Indiana a very large addition to the available agricultural lands may be secured by thorough underdrainage. Besides, we are confident that one-fourth more can be added to the average agricultural productions of lands now in cultivation and that have been in cultivation for many years.

We talk about growing 100 bushels of corn per acre. It is possible, and is being done on well drained land with intelligent management, but we mean to say that 100 bushels of corn can be grown on our good clay soil if they are well underdrained and the soil is well prepared and good, and sufficient seed is planted and the crop is well cultivated. Why do we think it possible? Because it has been done in several instances, and we reason that what has been done, and more, can be done again under like conditions. Does it not follow logically that if we can broaden the conditions so as to include a large proportion of our cultivated lands, then the general average yield will be raised accordingly. If the average yield of corn per acre in this state is thirty bushels, is it not probable that by draining all the land that needs to be underdrained and much that some think does not need this important improvement, and then plant and cultivate well, that the average yield per acre can be raised to forty bushels per acre. There are hundreds—yes, thousands—of acres in this state that, if underdrained and well managed, will grow a yield of from sixty to one hundred bushels per acre, and a few hundred acres that will go above the hundred mark. But do not forget the fact that at the base of such an improvement of soil conditions, to make it possible to do this, lies the factor, "sufficient underdrainage."

If we can add "one-fourth" to our average yield per acre of farm crops, why not go at it, like men who have a mission in this life? We can certainly do it by sufficient drainage and better tillage.

THE CARE OF BELTS WHILE PLANT IS SHUT DOWN.

To clean and put in order leather belting before putting it away it is a good idea to scrape it so as to get all the dust and dirt that has adhered to the surface off, that is, all that it is practical to remove in this way. This can be done while the belts are still on the pulleys if they are run slowly to facilitate the work, but if the weather is cold it may be better to take them off before doing the work. Then after scraping off the surface there are several mixtures that may be used to complete the cleaning. One that is pretty widely recommended is to use a mixture of three parts benzine or naphtha or gasoline and one part of turpentine. This will serve to cut the grease and loosen up any dirt that is

adhering, and this can be scraped off and then the process repeated until the belt is thoroughly clean.

If there is objection to using benzine or gasoline, turpentine may be used alone, but benzine is more commonly used than anything else. And quite frequently it is used alone without mixing with anything. After the belting has been thoroughly cleaned, then treat it with something to render it soft and pliant. There are a number of special belt dressings, and they may be used if desired. Or, in the absence of these, a little castor oil or a little tallow, but in using oil be careful not to use too much. Just enough to render the belt pliant, but not enough to make it flabby. The old-time people put a lot of faith in tallow, and it is really not a bad plan to thoroughly clean leather belts and then rub them over well with tallow, much like we used to tallow our boots in the early days before going out into the snow in the winter. It makes a coating that will protect the belting against moisture, and when the belting is put on the pulleys again in the spring and warmed up under service the tallow softens the leather and renders it pliant.

But do not use benzine or turpentine on rubber belts. In fact, rubber belts should not be cleaned with any penetrating liquid, but may be scraped and washed with a little warm water and soap—something that will not penetrate through the rubber.

If the belt has been running in a splatter of oil and has become so thoroughly saturated with it that it is flabby use chalk, Fuller's earth, or any dry and absorbent powder that will take up the oil. Cover the surface of the belt with it, let it stand a little, clean it off, and keep repeating until the surplus oil has all been removed by absorption.

DEEP WATERWAY IMPROVEMENTS.

A start has been made at least toward a general scheme for deep waterway improvements, and the indications are that before the present year is over there will be present plenty of incentive to add volume and push to the movement. Already people are growing a bit apprehensive of a coming car shortage and as soon as the building season opens up and lumber begins to move in large quantities and brick and other building material is added to the general volume of railway shipments it is feared the roads will not be able to serve the public promptly with all the cars that will be needed. We hate to see conditions arise that make delays and difficulties in transportation, but if they come again this year we will get the one consolation out of it all that it will add zest to the movement of improving our inland waterways and probably so encourage extra exertions that the work may be hastened. The outlook is much better than it ever has been for this scheme and, while we are pleased with the progress already made, we are hoping for still more.

BUILDING PROSPECTS LOOK GOOD.

The architects are probably busier today than they have been for three years, and the indications are that the opening of the spring season will see another shift in the building material world from the modest home builders back to the big down-town structures in large quantities.

There will not likely be a let-up in the modest home building nor in the agricultural districts, but there will be added to it, unless something goes wrong to interfere with plans now in hand, an enormous quantity of large structural undertakings, office buildings, hotels, apartments, and things of the kind that call for great quantities of structural steel, of brick, and other fireproofing material. Therefore, the situation at present is decidedly encouraging for brick manufacturers and terra cotta men and those making hollow clay blocks for fireproofing.

There is a strong sentiment toward fireproofing in all the large undertakings, and practically all architects who are well-informed on the subject recognize the fact that clay

products are the greatest fireproofing material that can be had. It looks like the manufacturers of material used in these big buildings will have to put their works in excellent order this winter and get ready for an early start in the spring, and be prepared to turn out a good quantity of stock, for unless the signs fail it will be needed.

KANSAS CITY BRICK AND BUILDING NEWS.



THE month of January has been an exceptionally good building month. It largely made up for the bad month of December; in fact, the weather of the two months was reversed this year from the regular course, and as a result the contracts which were hanging fire have been pushed through with unusual rapidity. Through December the brick people were making their deliveries at the different jobs, just the same as though work was in progress, and as a result all the material was on the ground and plenty of men anxious to get to work when the warmer weather came, so everything went off with a rush.

The net result of the good January is a pretty fair cleaning up of the surplus brick, and an advance already in sight of 25 cents per thousand on common brick, as plants are all notifying their customers that future orders will not be filled at less than that advance, and that a like advance is likely to be made within another thirty days. This makes the spring outlook good for the brick plants.

The local plants have been taking advantage of their cold weather opportunity to overhaul everything and put it in good shape for the balance of the year, and there will be a big output right here in the city; at the same time it is not thought the local supply will more than half take care of the demand, for the demand is sure to be much greater than it was last year.

The Lumbermen's convention, which was held the last week in January, was largely attended, and several of the brick concerns of the gas belt had exhibits in the Convention Hall, where all manufacturers were represented with booths who sell largely to the lumber people. Visiting brick men were generally enthusiastic over the prospect for future business, and stated that they were having a steady demand from the Southwest for most of the brick they could produce.

The building permits issued in this city for the month of January amounted to a total of \$543,876, or an increase over the same month of last year of \$111,146. Of these permits, 20 were for brick buildings, of a total value of \$195,000. Over the line in Kansas City, Kas., the permits for the month of January totaled \$63,550, or an increase of \$26,495 over the same month of last year.

The Lumbermen's Portland Cement Co., which makes its headquarters in this city, has begun operating its brick plant in Carlyle, Kas., under the management of I. R. Lamport, who formerly managed the plant at Mapleton, Kas. This company has established a fine brick plant, everything being built in the most substantial manner and the best of machinery installed, and on January 27, after the close of the Lumbermen's convention here, they run a special train of Pullman cars to the plant, taking their many stockholders among the lumbermen down to the plant to look it over and see it in operation.

Thomas Eadie, head of the Eadie Building Supply Co., is taking a vacation from business at this time, and spending several weeks in Mexico, his favorite ground for a pleasure trip. He took Mrs. Eadie down there for the benefit of her health, and will leave her there until spring.

Mr. Exner, of the Coffeyville Shale Brick Co., was in Kansas City last week, and reports having some five million paving brick sold in the Texas territory. His plant is also preparing to manufacture a high-grade face brick.

Mr. Ballou, manager of the Kansas Buff Brick & Mfg. Co., of Buff City, Kas., has been a recent visitor to the city, ac-

companied by Mr. Miller, president of the company, and Mr. Perkins, its secretary. This company has recently put in a plant with a capacity of 150,000 brick per day, and is manufacturing a high-grade buff brick. It not only put in the plant, but built a little city of its own, and has one of the nicest towns in Kansas, building houses for all of its employes, putting down sidewalks, and making the town as nearly modern as possible.

John May, who was formerly manager of the Standard Brick Co., of Coffeyville, Kas., was a recent visitor to the city, and reports having accepted a similar position with the Yoke Vitrified Brick Co., in the same place.

The Eadie Building Supply Co. reports the sale of several large contracts of brick since the departure of Mr. Eadie for Mexico, and there is every indication of a continuous good business with them, as their friends among the contractors are generally well supplied with work.

The plant of the Lawrence Vitrified Brick Co., Lawrence, Kas., was recently flooded by the waters of the Kaw river, on account of an ice gorge. The plant has been shut down.

The Pittsburg Brick Co. reports that it has work well under way on its new plant, to take the place of the one destroyed by fire. It will be a fire-proof plant when completed, and it is hoped that they will be able to make brick by the latter part of March. They are putting up a steel frame, with brick walls, and are overhauling all the machinery and putting in new parts, and expect the capacity of the plant to be greater than ever before.

The Kansas City Hydraulic Pressed Brick Co. is starting up its yard in the West Bottom this week, after a shut-down of several weeks for repairs, and the East Bottom yards will be closed down a week or so for a thorough overhauling. The yard in Kansas City, Kas., is soon to be operated on full time, and the Diamond yard has been in operation regularly. The past year has been an exceptionally good one for this company, and everything indicates that the coming year will be even better.

SOMETHING NEW IN BRICK BURNING.

The American Blower Company supplied one of the sensations of the convention through their announcement that they had perfected a system whereby ordinary up-draft open top kilns can be arranged for continuous burning, obtaining every advantage of the expensive continuous kilns, with which every brickmaker is more or less familiar. They exhibited a model of the kiln in their rooms which was built up of over 5,000 miniature bricks, which drew forth favorable comment of all who saw it. Contracts have been closed for the system with the Baltimore Brick Company, Baltimore, Md.; Potomac Brick Company, Washington, D. C.; Auburndale Brick Company, Toledo, Ohio, and the Sirocco Brick Company, Detroit, Mich.

BRICK AND STEEL CONSTRUCTION BEST.

There is not much getting around the fact that the steel frame is the best method of construction we have for tall buildings in the skyscraper class, and there is no getting around the argument that clay products are the best fireproofing material to use both inside and outside to get beauty on the one hand and to get absolute protection against fire on the other. Therefore, the ideal building and the better one for the clay products people and their business is the one made of steel framing instead of reinforced concrete for the body. It will take several years of time to tell us positively about these things, about the lasting qualities of concrete, reinforced and used in tall buildings. Meantime, there are some interesting points to watch and study in connection with the vagrant tendencies in architecture to make different combinations of brick and concrete, some with one outside facing and some with the other, and probably in the course of time we will develop various other combinations that will be featured in the next year or two.

Written for THE CLAY-WORKER.

BRICK NEWS OF KENTUCKY'S METROPOLIS.



THE PRESENT indications can be taken as a factor in the building industry here, there will be a considerable demand for all kinds of clay products during the next few months. The number and amount of the building permits issued last month show the most decided increase for January in a long period, and this gives evidence of the kind that looks favorable. The permits issued in January were eighty-eight, but the amount represented was \$271,956. This marks a very appreciable increase in the amount over last January, and looks very pleasing for the future. In fact, the reports show that this is the largest amount for permits in any January for the past five years.

The completion of some of the large sewers will also make a demand for more sewer pipe, and this will be a factor that will prove helpful to the industry, aside from the demand for other uses. Then there is more terra cotta, fancy brick and tile being called for, so that the aspect of the situation as a whole looks very pleasing.

The Southern Brick and Tile Company note that there has been a continued favorable demand for both building brick and drain tile. They have orders on hand now for a larger number of brick, and these are keeping them very active now.

Thomas McCullom & Co. say that there has been a fair demand for brick of late. They will resume operations at their plant with the arrival of favorable weather, and are counting on a much more active demand this year.

The Kentucky Vitrified Brick Company are now operating their large plant, and feel more encouraged over the prospects for the future. They have been making some improvements at the plant of late, and otherwise getting things in shape for a nice run.

The Louisville Brick Company continue to do a good business, disposing of all the building brick they have been able to manufacture. From the indications there will be a much more active demand this year than was the case last year, though they did a very nice business in that period.

The Hydraulic Brick Company are now operating all their plants and are keeping busy. With orders on hand to keep them active for some time, they are able to keep things moving along in an active manner.

The Louisville Pottery Company note a more active call for some lines of pottery now, and say that there is a better prospect ahead for the industry than was the case in the latter part of the past year. Jugs are not as much in demand as they might be, owing to the temperance situation in the South, but they feel that they will gain in this respect later, as the situation now looks more favorable for the industry generally.

The Louisville Sewer Pipe Company note that the situation in regard to sewer pipe is fair. While the present demand is somewhat light, owing to the winter weather, there is in prospect a most pleasing demand, and they feel every confidence in the outlook for the spring.

C. O. L.

PRESIDENT BLAIR SUGGESTS A GREAT EXHIBITION OF CLAY PRODUCTS.

MY DEAR RANDALL:

The annual convention just held was pleasing and gratifying in many respects. The effort on the part of so many members to place on foot a publicity movement resulted in the happy conclusion of the organization of the Building Brick Association of America. It is hoped and believed that the efforts to exploit the interests of building brick will meet with the greatest success.

The writer has just come from a look-in on the cement show at Chicago. I was greatly impressed by the lack of

attractiveness and diversity to be found in that show, as compared with the possibilities of an exhibition of the combined products of the clay industry.

Has not the time arrived when it is possible to open up the eyes of the public by a complete exhibition of the varied clay products, and would it not astonish the world if such an exhibition was held during the coming fall or winter, and could it not be made to surpass every other industrial effort that has been attempted in the past few years? I simply put the question up to the fraternity, to the clayworkers of America, as to whether or not such a suggestion might not now be carried out.

Very truly yours,

WILL P. BLAIR,

President N. B. M. A.

Indianapolis, Ind., Feb. 26.

THE SOUVENIR BADGE.

The large attendance at the National convention was a fruitful source of compliment. On every hand was heard, "It's the biggest and best convention yet," and similar comment. Every detail and feature of the arrangements for the convenience and pleasure of the visitors seemed to fit in with the sentiment, "The best ever." The badge presented to the



members by the Pittsburg Clayworkers' Association was no exception. It was pronounced exceptionally appropriate and pretty. The colors, black and yellow, are Pittsburg's colors, and the pendant bore the monogram of the Association on its face, and on the reverse side the inscription, "Twenty-fourth Annual Convention N. B. M. A., Pittsburg, Pa., February 7 to 12, 1910." The supply was exhausted, but a new lot has been ordered, so that absentees who have made it a practice to keep these souvenirs can be supplied. Those desiring one will kindly notify the Secretary. Those who have not remitted their annual fee are requested to do so at once, and in doing so to state whether a badge is desired.

PLEASE DO.

Mistah Wintah, please go 'way,
I been freezin' till I's froze;
Lemme thaw in time to say
"Howdy" to mah summah clo'es.

—Ex.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIII. FEBRUARY, 1910. No. 2.

CURRENT COMMENT.

The man that goes to a convention and fails to register misses some of the good things that are coming to him.

* * *

The National Brick Manufacturers' Association is making a record as a record breaker. Every year the attendance is larger than the year before.

* * *

Is the main difference between a large manufacturer of brick and a small one in that one is already big and the other intends to grow bigger?

* * *

Speaking of discrimination and the high cost of insurance on brick plants, it is possible that a lesson might be taken from the lumber people in mutual insurance.

* * *

If there is any organization that works harder than the National Paving Brick Manufacturers' Association it has to get up before day and stay up until after dark.

* * *

It was to be expected that a man with the name of O'Brien making a speech of welcome would be witty, because there is a flavor of Irish wit attached to the name itself.

* * *

Here's hoping that the new offspring of the parent Association, the B. B. A., will be busy bees and shine at every opportunity to promote the use of bricks through publicity.

* * *

There are a number of ways to artificially color clay products, but one of the most interesting questions and exhibits pertained to getting different colors from the natural clay.

* * *

To judge from the expressions given at the experience meeting, about the only place where sand-lime brick has a chance to become a formidable competitor to clay brick is

where there is lots of good sand and not much good clay, and even then some nearby clay manufacturer may have much the best of it.

* * *

The work of the Ceramic Society, though it is frequently elaborate and always deep and authentic, is generally gotten through with on schedule time and carried on in a smooth business-like manner.

* * *

The present size of the N. B. M. A. gatherings look good to anybody, but their magnitude today is more strongly impressed upon those old pioneers who were present twenty-four years ago, when there were about seventy gathered at the meeting.

* * *

One positive fact and a lot of good ideas come out of the discussions about brick checking. The one positive fact is that if they are checked before they go into the kiln the burning will not cure it, hence it is a good idea to prevent the checks while drying.

* * *

There were many good papers at the meeting and one worthy of special study, in view of the present tendency to seek for more artistic values and combinations of colors, was that of H. C. Mueller.

* * *

During the month of January we imported over \$10,000,000 worth of crude India rubber and for the first time on record India rubber heads the list of values in imported articles, being more than that of hides and skins. Which is making a noise like lots of automobile tires, as well as rubber necks and other novelties.

* * *

Of course, all of those that didn't go to the meeting can read the report of some of the sessions and get some good out of it that way, which is the next best thing to going, but the stay-aways miss those button-hole talks and the individual exchange of greetings and ideas that are worth a trip to the meeting any time. So, while you who stayed at home read the report this time, make up your mind that when the next meeting day rolls around you are going to add one more to the number present.

PUSH THE PUBLICITY PLAN.

Let us make a hobby out of the publicity idea and ride it. Ride it hard and persistently. For, if there is any one thing needed to make the clay products industry boom as it never did boom before, it is a country-wide campaign of publicity. This feature of the business has already been neglected too long. Not that clay manufacturers have been backward or sleeping, but they have been very busy investigating the technical problems involved and improving methods of manufacture. In this work wonders have been accomplished in the past quarter of a century, and now, while not neglecting this feature of the business in any way whatever, let us turn a big chunk of attention to another side—that of boosting clay products, and follow it up until we have accomplished as great a progress in this line as has been attained in the scientific and mechanical line in the past.

To begin with, we have the greatest material on earth and one that no man can grow too enthusiastic about. And, as we know something of what has been accomplished in the way of publicity in boosting other and less meritorious products, we can by thinking a while conceive of the great results that should be attained by a proper and persistent campaign of publicity. We are getting started at it right, and now, if everybody will lend a hand, not grudgingly but enthusiastically, and help along, not only financially but morally and personally by talking and doing a lot of individual boosting, we should be able to soon double and then double again the vol-

ume of clay products used. Indeed, there is no telling what limit of magnitude may be reached in a few years if we will all or even a fair share of us join in heartily and ride this hobby of boosting clay products by publicity. And not only may we do a great thing for the clayworking industry itself and materially enlarge the field and scope of work, but in so doing we will also be able to discharge a great public duty, for the benefits will not be alone for clayworking industries, but will be shared in by the entire country. To induce the building of more permanent and lasting homes free from danger of fire, the great enemy of mankind, and promote the building of more brick paved streets and roadways is to contribute to the public welfare as well as the enlargement of the clayworking business. With a condition of this kind before us, there is no excuse in the world for a man not joining in and helping this project of publicity along if he is in any way interested in the clayworking business, and nothing but general lethargy can be seen as a retarding influence. Let us shake this off and get busy and help push this publicity plan with all the money, energy, enterprise and enthusiasm we can muster up.

A GOVERNMENT EXAMPLE IN FIRE-PROOFING.

The U. S. Geological Survey is not only gathering data from time to time and compiling it and making suggestions to encourage fire-proof construction, but the government itself sets a pretty big and shining example for others. The government owns \$300,000,000 worth of buildings, and is spending approximately \$20,000,000 a year erecting new buildings, and none of these buildings are insured against loss by fire. The insurance on these would cost about \$500,000 a year, and the government saves this money and avoids this expense by erecting practically fire-proof buildings. Now and then something happens to one of these, of course, and there is loss by fire, but in the modern structures there is very little of such loss, or rather the damage is very small when fire does start. Loss by fire in the government buildings is in striking contrast to the loss by fire in the buildings owned by private individuals, and this of itself furnishes one of the strong arguments in favor of more widespread fire-proof construction. A recent press bulletin reviews in some detail the annual fire loss of the country, which amounts close to \$1,000,000 a day. The loss by fire is said to be eight times that of Europe; that is, eight times on a percapita basis. And as Europe uses considerable of the harder building materials, the lesson is so easily apparent that it needs no elaboration. The strongest point to get out of it all to urge an argument in favor of the use of brick in building operations is that the difference in cost now is only nominal. Lumber and timber products have attained enough value through the depleting of forests that the cost of construction of even modest homes of brick does not materially exceed that of lumber, except, of course, in the immediate districts where lumber is manufactured. Even there the mill men are recognizing the advantages of fire-proof construction, and are erecting steel-frame fire-proof mills, and soon the natives dwelling in the forests may be induced to do the same thing if the matter is kept before them in the right light.

PUT YOUR PLANT IN SHAPE.

Put your plants in order, for it looks like there is a good time ahead. Get at it early and make the work thorough, so that there need be no hitch at the manufacturing end to interfere with prosperity the coming season. Reports from all sections of the country indicate something bordering on a boom in building operations, and every time the sun shines for a few days and warms up the earth we see evidence of the inclination to build outcropping on all sides. It is impossible, of course, to authentically prophesy the future, even

the near future, but unless all signs fail, building will start this spring with a rush and there will be a heavy volume of it. Architects have been unusually busy on plans for large structures all over the country and practically all of them that have been interviewed express the belief that we are to have the best year in building operations that we have had for some time. People with money are anxious to get it into investments and the building idea seems to appeal more strongly than anything else. About the only thing we can think of that can possibly interfere is labor difficulties and the development of strikes as the season warms up, but we are hoping against this and believe that serious strikes can either be avoided or soon settled and that the season of 1910 is to be a banner one in building operations. So, don't delay until the last minute to make additions or alterations in your plant or to put it in shape for running, for there is nothing like being ready when the rush comes, and this year there is very little excuse for not being prepared to take care of a good volume of trade. There is no need to build additions and expand recklessly in anticipation of doubling the trade unless there are peculiar local conditions to warrant it, but it does look like a good time to make improvements and rational enlargements and get in shape generally for a big run. Things look so good that the word should be passed all along the line, get busy.

THAT POSTAL DEFICIT.

All the magazines and trade papers are naturally considerably worked up over the recommendation that the second-class rate on these periodicals be increased. The excuse given for proposing to increase the rate on such periodicals is that the postoffice department came out about \$17,000,000 in the hole for the past year. Therefore, it is proposed to make the magazines and other periodicals, except newspapers, help make up the shortage by charging them a little more. Just why they should make sheep of the newspapers and goats out of magazines and other periodicals is not explained. Another thing that is not explained is why and how this deficit came about. In other words, there is no explanation of the great cost of extending rural delivery that has been one of the features for the past few years, nor of the franking privilege of the many government officials that has been abused for 10, these many years. We firmly believe that the postoffice department should pay its own way and that there should not be any such deficit, and when there is a deficit the system should be investigated with a view to determining what causes it and what branches may be best taxed heavier to make it up.

But, so far as we can see, not only is it unfair to undertake the laying of the burden of this thing on the magazines and trade papers, but it would be a step toward stifling one of the sources which makes for the greatest of American progress. The greatest educators and disseminators of information in the world are the trade papers of the United States, and they have not only by specializing kept the readers in every industry well informed on the progress that has been made, but by carrying this information, together with the advertising of new offerings, they have stimulated greater effort and kept alive enthusiasm that has made remarkable progress for this country. Therefore, we are rather of the opinion that after the President and Congress take all these things into due consideration, there will be a change of sentiment in the matter.

We are rapidly getting to be a nation of silks and satins as well as great home builders. The importation of raw silk into the United States made its highest record in the calendar year 1909, with a total value of \$75,500,000, which was \$2,500,000 more than in 1907 while finances were at their high tide. It sounds like another prosperity wave, doesn't it?

NEW PUBLICATION.

"Let Us Figure A Little," is the title of an attractive folder being distributed by the Green Fuel Economizer Company. The folder is gotten up to represent a common school slate and tells of numerous textile mills where Green Economizers are producing large savings. The actual saving in dollars is clearly figured out for a typical plant and the computations set down in the form of a balance sheet show convincingly the yearly net profit per horse power to be obtained from a Green Fuel Economizer. This leaflet may be obtained by application to the Green Fuel Economizer Company, Matteawan, N. Y.

NEW REPRESENTATIVE FOR THE RAYMOND COMPANY

Our southern friends will be interested to learn that the C. W. Raymond Company, of Dayton, Ohio, manufacturers of clay working machinery, has secured the services of Mr. A. A. Vaughn, of Milledgeville, Georgia. Mr. Vaughn will represent the Raymond interests in "Dixie Land," his territory comprising the states of Alabama, Georgia, Tennessee and the Carolinas. Mr. Vaughn is an excellent type of a southern business man and a practical brick maker, having been with the Baldwin County Brick and Pottery Company, of Milledgeville, Georgia, since its inception. Great success for Mr. Vaughn is anticipated, as, since his short connection with the Raymond Company, he has succeeded in closing considerable business.

PITTSBURG'S GREETING.

From far and near are gathered here in wonderful array
The staunch and solid gentlemen that deal in brick and clay.
An enterprising tribe are they, that win by honest toil
A very handsome living from the sub and surface soil.

With their fire clay and pipe clay and dark clay and light,
With their drawn clay and long clay and rare kaolinite
With their porcelain and china clay, these noble delegates
Can challenge all the world to meet these old United States.

Without these kings of industry what could we ever do?
A total lack of pottery would certainly ensue.
And worse than this, our houses would be built of brick no more
For these are the brick producers, coming boldly to the fore.

With their green brick and red brick and brick surfaced blue,
With their pressed brick and Dutch brick and brick of salmon hue,
With their gaged brick and hollow brick, these monarchs of the kiln
Can challenge all creation to a test of brains and skill.

Our walks and tessellated floors would soon degenerate
Without this clan aluminous and steeped in silicate.
We'd have no terra cotta and we'd seek in vain for tiles
Which these wonder-workers give us in a thousand shapes and styles.

With their plain tiles and drain tiles and tiles to line the wall,
With their tiles that are encaustic—things of beauty one and all.
Other kinds of artists may be worthy of renown.
But it's oh, you clay and brick men, you've the homage of our town.

—Arthur G. Burgoyne, in *Pittsburg Chronicle*.

BILL MINNICK'S PRAYER.

I've noticed when a fellow dies, no matter what he's been,
A saintly chap or one whose life was deeply steeped in sin.
His friends forget the bitter words they spoke but yesterday,
And find a multitude of pretty things to say.
I fancy when I go to rest, someone will bring to light,
Some kindly word or goodly act, long buried out of sight.
But if it's all the same to you, just give to me instead,
The bouquets when I'm living and the knocking when I'm dead.

Don't save your kisses to imprint upon my marble brow,
While countless maledictions are hurled upon me now.
Say just one kindly word to me, while I mourn here alone,
And don't save all your eulogies to carve upon a stone.
What do I care if, when I'm dead, the *Harris Speed* gazette,
Gives me a writeup with a cut, in mourning borders set.
It will not flatter me a bit, no matter what is said,
So kindly throw your bouquets now and knock me when I'm dead.

It may be fine when one is dead, to have the folks talk so,
To have the flowers come in loads from relatives you know.
It may be nice to have these things from those you leave behind,
But just so far as I'm concerned, I really do not mind.
I'm quite alive and well today and while I linger here,
Lend me a helping hand at times, give me a word of cheer.
Just change the game a little bit, just kindly sway the decks,
For I'll be no judge of flowers, when I've cashed in my checks.

—Speed.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good en-
gineering such as is done by
**The Richardson-Lovejoy
Engineering Company.**
[See page 200.]

Written for THE CLAY-WORKER.

NEWS OF THE TWIN CITIES AND THE NORTHWEST.



NEW YEAR is opening up fairly active in a building way. A number of good-sized buildings for spring construction are already in view, and more are projected within a short time; that is, are tentatively arranged, but not absolutely decided upon. The new work so far is quite encouraging from the standpoint of the brick manufacturer. It provides for much brick construction, calling for common brick and also for the pressed and ornamental brick, and the various kinds of hollow tile. So far, the reinforced concrete construction has not shown up very strongly. This construction usually includes with it a great deal of brick. The walls are almost always of pressed brick and terra cotta, while the side and rear walls are of common brick.

President J. W. L. Corning, president of the Minnesota State Association of Builders' Exchanges and also president of the Northwestern Clay Association, has addressed a letter to Governor A. O. Eberhart, of Minnesota, urging upon him the importance of the state providing a more adequate method of teaching mechanical trades than is now the case. President Corning quotes from a German report to the effect that Germany has little to fear from American competition for some time to come, owing to the absolute lack of mechanical training of its young men. The letter received the earnest consideration of Governor Eberhart, who announces that it will be brought before the congress for the conservation of natural resources, which is to meet in St. Paul, and much time of the meeting will be devoted to considering the subject of trade training. The Builders' Exchanges are invited to have a number of representatives at the meeting when the subject is discussed for the purpose of considering the matter and of making suggestions.

Brief Notes.

The Minneapolis office of the Twin City Brick Company has been moved from 200 Lumber Exchange to 1018 Lumber Exchange.

Minneapolis laid 288,728 yards of brick paving during 1909, according to the report of the city engineer.

Hartford & Jacobson constitute a new architectural firm which has engaged in practice in St. Paul, with offices at 520 Manhattan building. They were formerly connected with the office of Clarence H. Johnston, the State Architect.

The Northwestern Lumbermen's Association, which met in Minneapolis during the week of January 17, brought a number of sewer pipe and other clay firms to the city with exhibits of their goods. The Plymouth Clay Products Company, Fort Dodge Company, the Lehigh Sewer Pipe Company, Fort Dodge, and others were on hand.

The Minneapolis Storage and Transfer Company proposes to erect a five-story brick building at Hennepin avenue and Twenty-ninth street on trackage. It will be fireproof throughout, 90x125 feet in size. The office will be finished in tile and will have a tiled floor. Cost, about \$100,000.

The Western Avenue Methodist Episcopal congregation, of Minneapolis, anticipates the erection of a new church during the year on a new site at Penn and Tenth avenues North, to cost \$20,000 or more.

The St. Paul Board of Education has laid out a plan of new building work for the coming season. Four new high school buildings are planned and work is under way on some of them. Additions are also planned to a number of grade schools. The work will cost, all told, about \$1,200,000.

Plans have been prepared for the Parlin & Orendorff Plow Company for a wholesale warehouse to be erected in Minneapolis, on Washington avenue near Seventh avenue North. The building will be six or seven stories in height, brick, containing about 200,000 square feet of floor space. Cost, about \$150,000.

The Minneapolis Public Library Commission proposes the erection of a branch library building at Hennepin avenue and Twenty-ninth street, to cost about \$35,000.

T. WIN.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.

NOTWITHSTANDING the fact that it will be some time before the busy spring building season will actually be under way, orders are already being placed for material. Manufacturers and dealers say that it has been many seasons since such large and frequent orders have been placed so early in the season, and it is taken to indicate that there are to be busy times ahead. Architects and contractors report that they are more than usually busy and that as far as they are able to predict the coming season will witness a record amount of building done. Thus far, architects are preparing plans for about an equal number of concrete and brick structures, but it is estimated that this season will show a large increase in the number of brick structures to be erected. One of the brightest features of 1909 was the fact that the majority of manufacturing plants and additions erected were of brick material and brick manufacturers and dealers are confident that this state of affairs will be repeated this year. The various brick plants about the state are busy preparing for the spring rush.

The American Clay Products Company, a Minnesota corporation with a capital stock of \$100,000 and Wisconsin interests of \$35,000, has filed a statement to transact business in this state.

Announcement was made at the recent annual meeting of the Fond du Lac Pressed Brick Company, of Fond du Lac, Wis., that the company's output will be increased this year from 3,000,000 to 6,000,000 brick. A new kiln will be erected at the yards of the company and new machinery will be installed. Officers for the ensuing year were elected as follows: President, Robert Zinke; vice-president, A. J. McCreery; secretary, E. H. Korrer; treasurer, M. T. Simmons; directors, A. G. Bechaud, Joseph Hutter, Charles F. Geisse, Dr. R. J. Serwe, George E. Boland and the officers.

A good business in paving brick during the year 1910 is expected by manufacturers and dealers of Milwaukee. Because adverse legislation acted as a hindrance, about one-half of the paving business of Milwaukee was carried over from last fall. This, together with the vast amount of new business that is confidently expected, is sure to boost total sales to a most satisfactory figure. On several of the leading streets of Milwaukee asphalt has not given the satisfaction that was expected, and this will probably influence the laying of even more brick pavements this year.

More than two and one-half miles of new vitrified brick paving will be laid at Beloit, Wis., during the coming summer, according to the action recently taken by the Common Council of that city. Brick paving has always given great satisfaction in Beloit. New sanitary sewers will also be laid on many of the streets, calling for heavy purchases of tile.

The bricklayers' union at Kenosha, Wis., has issued an edict that hereafter bricklayers and masons will not work on concrete foundations, artificial stone, etc., which is to substitute brick work, unless the work has been supervised by a union bricklayer.

Vitrified brick will be used at Manitowoc, Wis., for the paving of streets to be improved this year. The city will demand a five-year guarantee on all work, the estimated cost of which will be from \$1.80 to \$2.26 per square yard. Brick was selected by the Common Council after five different kinds of paving material had been presented before the body. The specifications provide for a base of concrete six inches deep, and a cushion of sand 1.5 inches.

Residents of Racine, Wis., are so partial to brick pavements that they have petitioned the Common Council asking that Kinzie avenue be not paved with macadam, as is now being contemplated, but with brick instead.

A. BADGER.

THE ANTON VOGT KILN CONSTRUCTION COMPANY,

Fort Smith, Arkansas.

Plans submitted for Down-Draft Kilns for All Purposes.

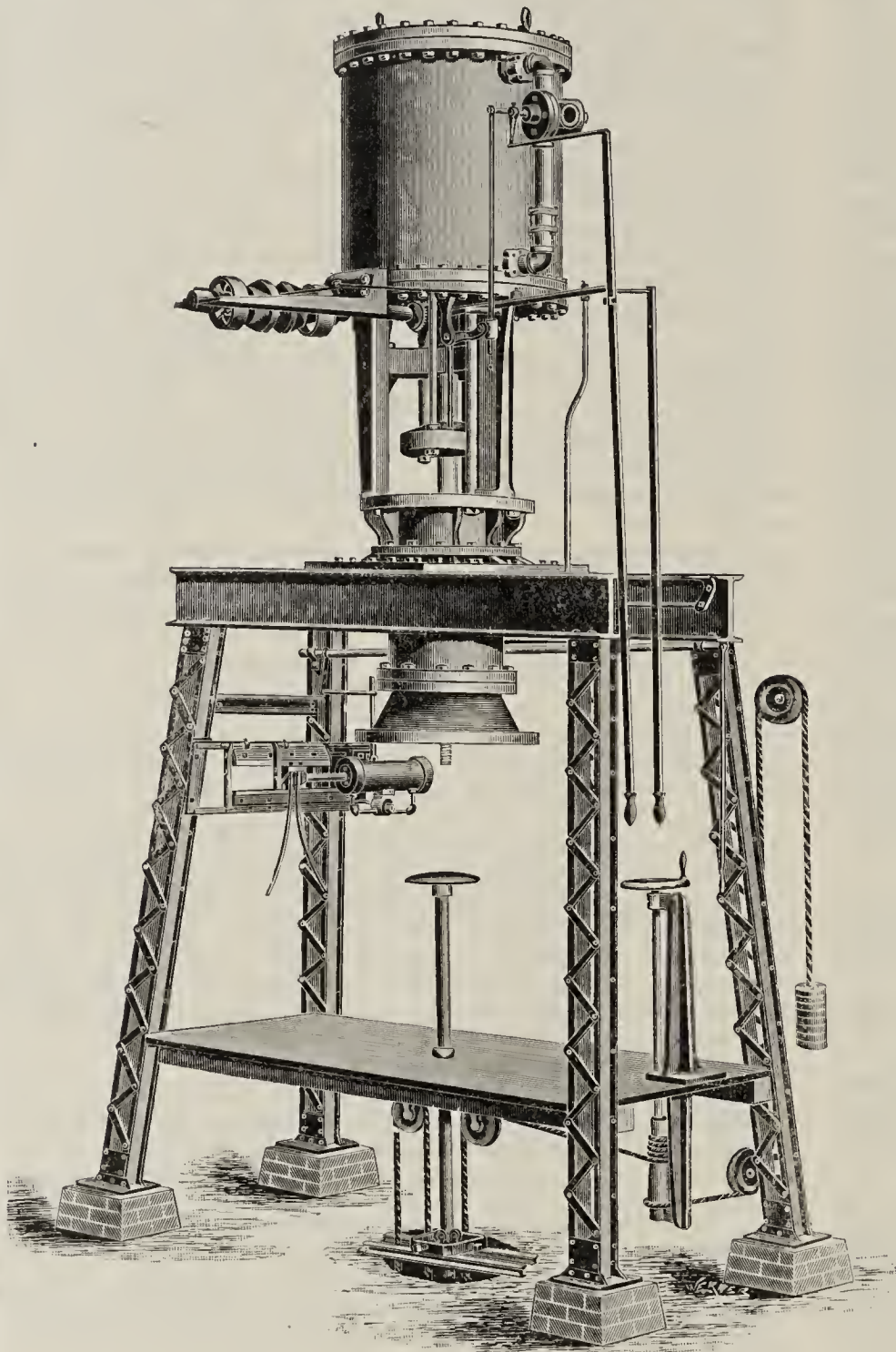
Our Specialty: A Superior Kiln for Common Brick that is AS CHEAP AS an updraft kiln.

STOP! LOOK!! LISTEN!!!

STOP

AT

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 National Drain Tile Co., Terre Haute, Ind.
 White Hall Sewer Pipe Co., White Hall, Ill.
 Lehigh Clay Products Co., Lehigh, Ia.
 The Denny-Renton Co., Seattle, Wash.
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LOOK

and see whose Clayworking Machinery is installed in these plants and why these representative manufacturers purchased this machinery.

LISTEN

to their explanation; they can tell you all about who makes the best sewer pipe machinery; who makes the best dies; who secured their contracts and why and all about it.



The Taplin Rice Clerkkin Co.,

The Machinery Folks, Akron, Ohio, U. S. A.

Get Catalog No. 27.

Written for THE CLAY-WORKER.

NEWS FROM DIXIE LAND.



TRADE conditions in the principal cities and the larger towns of the South look good from a building aspect. January building in Montgomery, Ala., was better than any month in the last five, except December. At San Antonio, Texas, 319 permits were issued, valued at \$198,051, and at Fort Worth permits to the value of \$295,972.50. Houston permits ran to \$426,385. Memphis leads all Southern cities in valuation of building permits for January, the total number being 244, amounting in value to \$1,224,182, as against 165 of the value of \$220,571 in 1909.

E. T. Lewis & Co. Arcade, Nashville, Tenn., report considerable work in progress and prospect. This firm is doing the brick work on the ten-story Hermitage Hotel, now nearing completion in that city. Mr. E. T. Lewis, of the firm, has been attending the brickmakers' convention at Pittsburg during the last ten days.

C. A. Mitchell and B. R. Brown are contemplating the establishment of a brick manufacturing plant at Heber, Ark.

The Oconee Brick and Tile Company, at Milledgeville, Ga., is preparing to establish a plant for manufacturing sewer pipe, drain and partition tile.

The Corinth Brick Works, at Corinth, Miss., were visited a few days ago by THE CLAY-WORKER correspondent. Everything is active there, with considerable work on hand in Corinth for the spring months. The kilns are running and there are several hundred thousand brick on hand.

The Cubbins Brick Company, at Memphis, Tenn., were also visited. Mr. Cubbins said: "Trade is good and the outlook in Memphis is bright for spring building. We have about 2,000,000 brick on hand." The firm recently furnished 350,000 brick for the Riverside school in Memphis, 450,000 for the Phoenix Cotton Oil Company, and about 250,000 for the Lee garage.

At the office of the Southern Clay Products Company, James building, Chattanooga, it was stated that their plant was running every day, with orders ahead.

The Coffeyville (Kas.) Brick Company has purchased the plant of the Fort Smith Vitrified Brick Company and will install new equipment, drying tunnels and kilns and double the capacity of the plant.

W. J. Hunt is now managing the interests of the Southern Tile and Brick Company, at Jackson, Tenn., since the retirement of Mr. Wickersham. The company is operating right along on press, common and fire brick.

J. B. Long is running another plant in Jackson, where common brick are manufactured.

The Chattahoochee Brick Company, with offices in the Fourth National Bank Bldg., Atlanta, Ga., contemplates the establishment of a conveyer system for transporting clay from the west side of the Chattahoochee river to a plant on the east side of the river about eight miles from Atlanta.

The Standard Brick Company, at Mayfield, Ky., has been organized, with a capital stock of \$10,000, by O. S. Waggoner, X. B. Wickersham and G. R. Allen.

Coating a brick paved street with asphalt without tearing up the brick or disturbing the street in any way further than to clean it before administering the new surface was an operation carefully conducted at Main and Monroe streets, Memphis, a few days ago. The demonstration was conducted under the personal supervision of G. H. Lutz, of Kansas City, Mo., inventor of the machine which makes this economical inauguration possible. The Memphis Asphalt and Paving Company is behind the matter and will show the city commissioners that streets already paved with brick may be coated with asphalt without tearing up the brick, meaning a saving of from 40 to 50 per cent. A test was made of 365

square yards of brick paving, beginning at Main street and running back the width of Monroe avenue toward the river. The street first was given a thorough washing, then heated with a patent heating machine invented by Mr. Lutz. It forces hot air against the surface, heating the brick to a degree sufficient to make a thin coating of asphalt paint stick. Then the regular surface is spread and rolled and the street is completed. Brick streets properly laid have as good a foundation as is possible to lay, and heretofore the brick have been removed and foundation laid bare for the coating of asphalt. Under the new method, which has been tried successfully in dozens of other cities, the cost of tearing up and carting away the brick surface has been done away with, and the city profits both in dollars and in time. The Memphis Asphalt and Paving Company will urge the city commissioners to permit the building on asphalt streets without tearing up the brick surface on streets to be repaved.

Stahl Bros. have purchased the brick plant of L. J. Forsman, at Thorsby, Ala., and will install new machinery and operate.

The Tulsa Paving and Building Company is proceeding with the construction of proposed plants for manufacturing vitrified and stiff mud brick, capacity per ten-hour day, 175,000.

The Francis Vitrified Brick Company has been incorporated at Boynton, Okla., by W. L. Buckles, Charles Francis, F. S. Naugle and others.

H. V. Ragan, E. Kennedy and J. C. Goode have organized a brick company at Thomasville, N. C., and leased five acres of clay land, and will establish a plant with a capacity of 20,000 bricks daily.

Another important industrial plant established in the Southeast is the South Jacksonville Brick and Tile factory, at Jacksonville, Fla., by Messrs. Telfair, Stockton and Robert Gamble. The plant is equipped for producing 200,000 brick daily. It includes eight drying sheds with a capacity of 4,000,000 bricks and twenty to thirty kilns. Other clay products will be produced, including fireproofing, flue liners, partition walls, terra cotta, piping, etc. Daniel Cobb, formerly in charge of the Jacksonville Brick Works, will be superintendent. The title of the firm will be Gamble-Stockton Brick and Tile Works.

The Fulcher Brick Company, at Nashville, Tenn., were visited by THE CLAY-WORKER's representative. They report the winter business holding up well and the spring outlook good. The company has just secured the contract for the brick work and brick on the new Colonial Theater here. The front will be of buff brick.

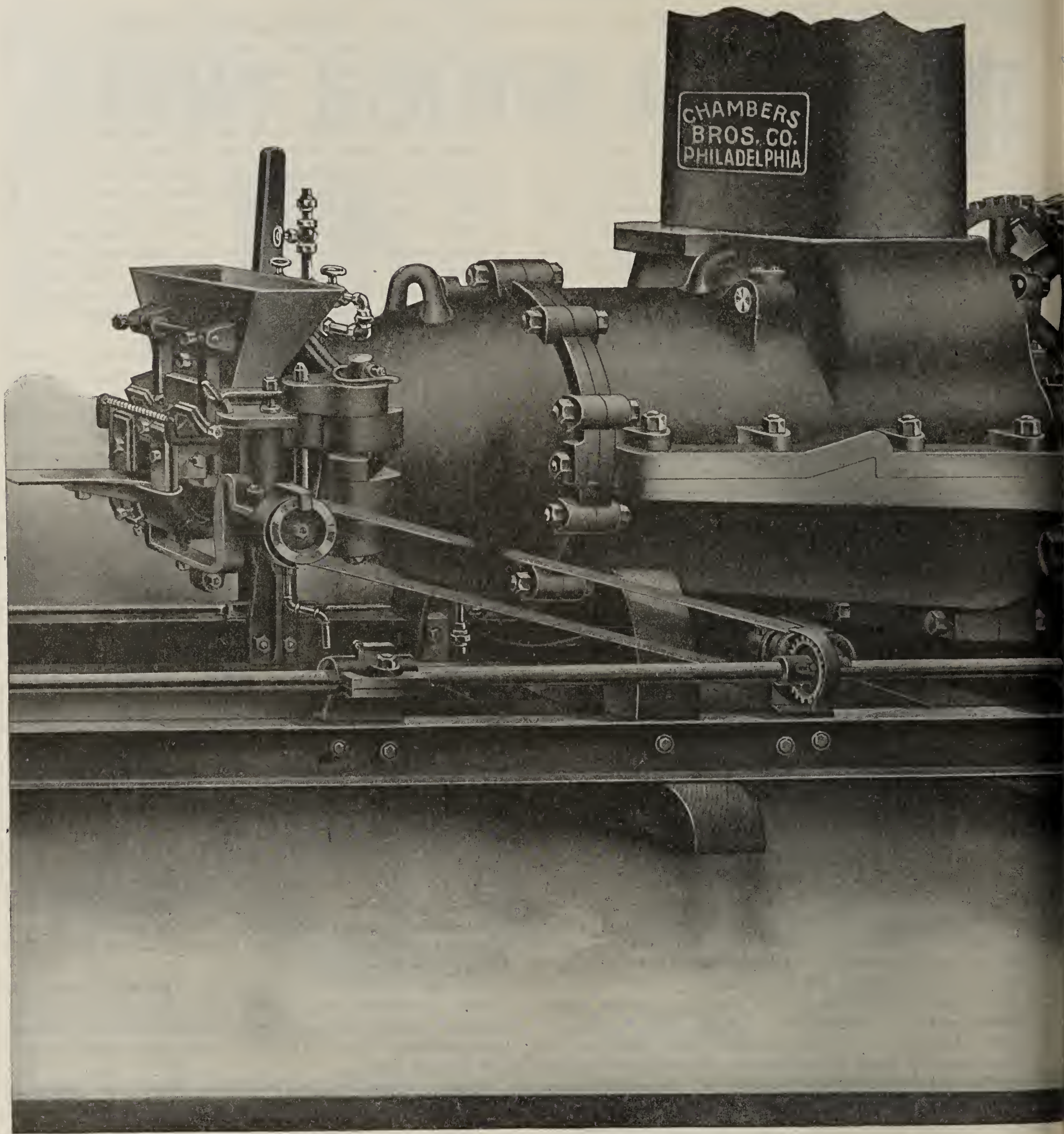
The W. G. Bush Brick Company, Nashville, Tenn., are looking forward to a good season. They have about 2,000,000 common brick on hand and about 1,000,000 hydraulic pressed brick on hand. They are carrying about seven shades of red and three of gray.

Costen, Moore & Co., at McKenzie, Tenn., are burning a kiln of brick and enjoying a good patronage in that territory.

DIXIE.

OF INTEREST TO SHIPPERS.

Owing to the numerous changes that have been made of late in freight rates on brick, Mr. John F. Lent, the traffic representative of the National Paving Brick Manufacturers' Association has prepared a schedule of the new rates, and has arranged to supply them to brick shippers, and will cover any desired territory. Those interested are requested to communicate direct with Mr. Lent, whose office is 1209 Park Building, Pittsburg, stating the points to and from which the rates are desired. Rates will be quoted from any ten brick-producing points to fifty destinations for a nominal fee of \$5. An application blank for the convenience of those desiring this service will be supplied by Mr. Lent.



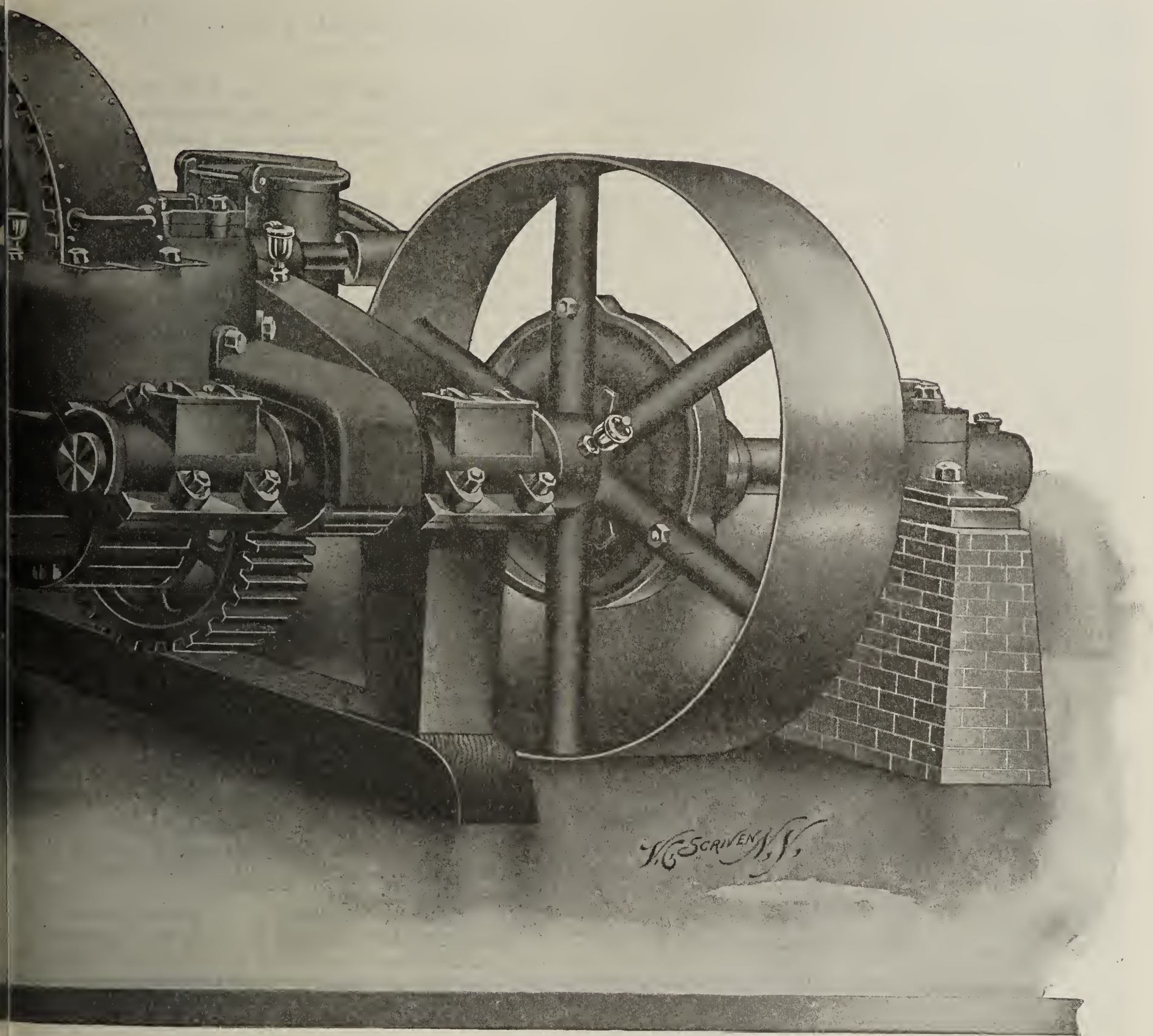
AUGER BRICK

SEVERAL SIZES

Fifty-Second and Media Streets,
Philadelphia, Pennsylvania.

Chambers Brothers
Company.

Mention THE CLAY-WORKER.



MACHINES

BUILT BY

Chambers Brothers
Company,

524 West Jackson Boulevard,
Chicago, Illinois.

See ad on page 199,

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NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS FROM CLEVELAND, OHIO.



WHILE THE PAST MONTH has seen an entire suspension of building operations in this territory, it has been a busy one for the contractors who are figuring on many new jobs. It is estimated that between \$8,000,000 and \$10,000,000 worth of work has already been announced, exclusive of residences and many smaller projects which will be gone on with when the weather permits. It is confidently believed that this year will see a total of at least \$15,000,000 worth of building permits taken out. This will represent an actual expenditure of at least \$25,000,000, which will climax all local records.

The brickmakers are all busy laying up stock for the spring and summer rush. The paving brick plants are operating, getting out pavers for the spring demand. Some of the common brick plants are closed just now for repairs, but they will be running again soon. The dealers in brick are all optimistic.

The largest single contract awarded during the past month was that of the sixteen-story addition to the Rockefeller building. The contract is to be executed in double quick order by the Thompson Starrett Company, of New York City. According to the contract, the structure is to be completed by October 1 next. It is to have a frontage of sixty-three feet on Superior avenue and runs back over 200 feet to another street. It will be of brown pressed and white enamel brick. The interior halls will be in white marble. The structure will cost nearly a million.

A valuable site has been purchased by the Board of Education on the West Side for a new Technical High School, similar to the \$500,000 structure recently constructed on the East Side. The new building is being planned in the office of School Architect F. S. Barnum, who will take bids on it within a few weeks. It will cost \$250,000 or \$300,000 and will be of brick, steel and concrete. The site alone cost \$50,000.

Another huge ice rink is to be built in Cleveland during the coming summer. It is planned to eclipse even the Elysium, which is here, and which has the largest artificial ice surface of any rink in the world.

Architect Geo. A. Griebel has completed plans for the new \$75,000 Priscilla Theater at E. Ninth street and Chestnut avenue. It is to seat 1,200 and is to be one of the prettiest and cosiest in the city. The walls will be of a white iron-spot brick, while the ornamentation, which will be very elaborate, will be in terra cotta.

Four new school buildings, averaging about \$100,000 apiece, are to be erected this year by the Cleveland Board of Education. Plans for all these buildings are being prepared in the office of the school architects, who will let bids shortly.

The Baker Motor Vehicle Company is to erect a big garage at Euclid avenue and E. Seventy-first street. It will be 200 feet by 162 feet in size and of red pressed brick. The front will be of the finest tapestry brick that can be obtained, set with a wide raked joint, which is expected to give an unusually artistic effect. The roof is to be of red tile. The Euclid avenue sections will be devoted to show rooms for automobiles, while the side street will be utilized for garage purposes. The Crowell & Sherman Company has the general contract for the structure. The Queisser-Bliss Company supplies the brick.

A building recently completed for the Sanglinist colony on Pearl road is attracting some attention. It was designed by Architect Henry A. Walsh, and has an exterior of red face brick with stone trimmings, with a red tile roof. The main corridor in the structure is finished in a buff colored Norman brick with stone trimmings. The use of fine brick for interior facing purposes is increasing in this section of the country.

The Hunkin Bros. Construction Company, one of the big-

gest building concerns in Cleveland, has changed its name to the Hunkin-Conkey Company, the name of G. E. Conkey being added to the title. Mr. Conkey has been associated with the firm for a number of years.

Cuyahoga county, which has such magnificent brick-paved country highways, is to spend several million dollars this year. About thirty miles of pavements through the rural districts are to be laid. Some of the roads to be paved are: Clegg road, from Coe ridge to Lake road, three and a half miles, and Bradley road, North ridge to Lake road, two miles, in Dover Bay village. Center ridge, Dover, six miles. Highland road, Euclid avenue to Richmond road. Lee road, South Woodland to Bedford road, three and a half miles.

J. J. Rowe has filed incorporation papers for the Lake Erie Supply Company, of Cleveland, with an initial capitalization of \$100,000. The incorporators are W. C. Runyon, R. B. Ellis, J. J. Rowe, W. A. Fay and John Scheuer. W. A. Fay, former manager of the Masons Supply Company and later manager of the Cleveland Builders' Supply Company, has become manager of the new concern.

W. H. Hunt, formerly general manager of the Cleveland Hydraulic Pressed Brick Company, and later senior member of the Hunt-Queisser-Bliss Company, has been made an honorary member of the Builders' Exchange in honor of his long connection with the exchange. Mr. Hunt has blossomed out as a life insurance company president, and has severed his interests with the building industry. During the past month he has been enjoying a vacation in Florida.

The plant of the Windsor Brick Company, at Akron, valued at \$50,000, was totally destroyed by fire early this month. The fire is said by employees to have been started by tramps who were refused a place to sleep during the night.

BUCKEYE.

THE 1910 OPEN DOOR.

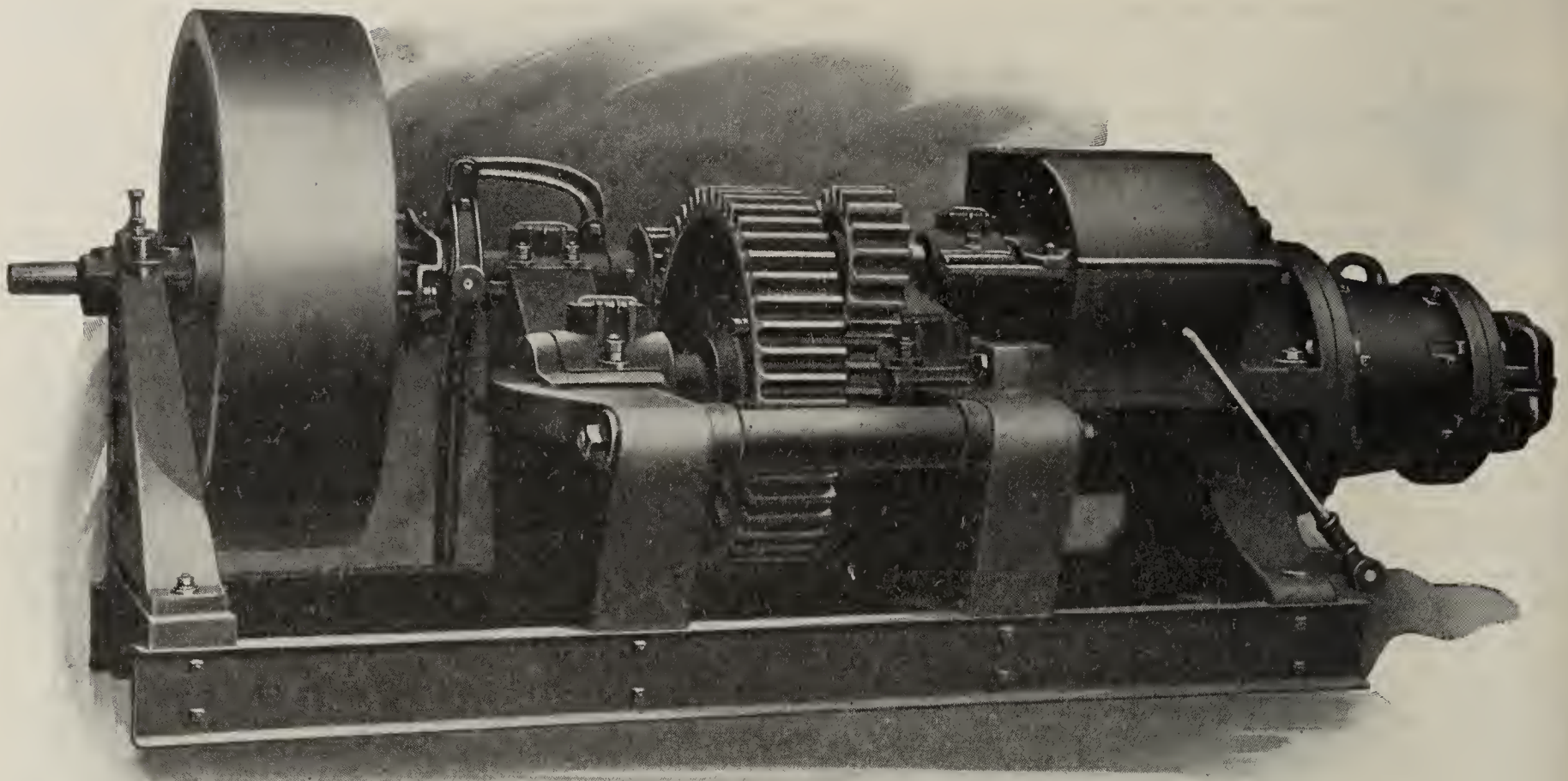
Brickmakers attending the convention, and many others as well, are showing a great deal of interest in the 1910 model dry press of the Chicago Brick Machinery Company, now called "The Elwood," but more popularly known as "The Open Door." This name has reference to the manner of opening the mold table, which is hinged at one side, opening like a door. The simplicity and practicability of this new method of changing the molds on a dry press has captured the hearts of all who are interested in that process of making brick.

When the "Open Door" is open, the press presents the appearance shown in the cut in our advertising pages, and it is most attractive. The mold box, which is left free and accessible, is simply withdrawn along the two guide rods shown underneath it in the cut, and is taken away to have the liners changed or reground. The second mold box furnished with this press is then placed on the guides and slid into exact position, requiring no complicated adjusting. The guides are now withdrawn and the door closed.

This completes the operation of changing the molds, which occupies but a few minutes, and is quite a revelation to those who have wrestled with the older method of assembling the mold piece by piece in the press, a process both tedious and slow, as well as exasperating. Those who are most appreciative of this 1910 method are the old-time, experienced, dry-press brickmakers, who know what it means.

Either solid or saw-blade liners can be used with this press, as the material requires or the owner prefers.

There are also a number of other new features on this press not quite so spectacular as the "open door," but equally practical and valuable. The reputation in the dry press field of the C. B. M. Co., represented at the convention by our genial friend, John Moroney, is in itself a sufficient guarantee as to the merits of this their latest development in their special line. Those contemplating the addition of a press any time this year should not fail to see both this new machine and Mr. Moroney. They will find him an "open door" also on all kinds of press information; and there is still another door always open at his pleasant offices in Chicago, 77 Jackson boulevard.

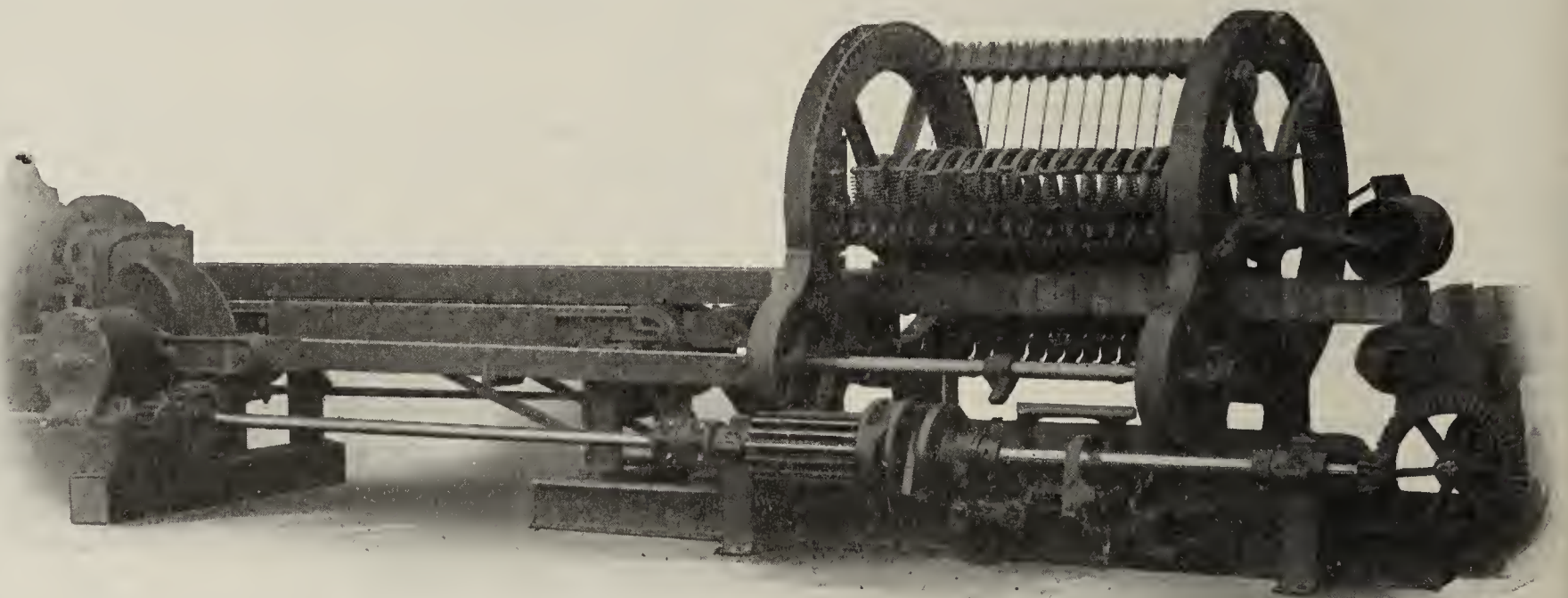


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 398-401.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE SPRING building construction has begun and numerous contracts are being signed for the bricks. Building activity has been stimulated to a certain extent by the tearing down of the condemned wooden structures in the fire district and the erection of permanent structures. The price of bricks has become so low that almost all the building work done in this city is of brick construction. The price of common brick, which has been unsteady for nearly a year past, is now as low as \$5.75 f. o. b., with no chance for a rise and little chance for a decrease. A local manufacturer states that the bricks cost 50 cents a thousand to load, \$1.75 to get them into the city and \$3.50 is left for the production. This low price has come as the result of throat-cutting competition, caused by over-production. San Francisco firms manufacture, or rather can manufacture, 300,000,000 common brick a year, while the consumption is only 75,000,000. The local brick manufacturers can not send their bricks to other markets on account of the excessive freight rates. It therefore remains for this city to use her own production of common brick and to buy of the firms which can produce the cheapest. Only three out of eighteen manufacturers can make common brick at the present price, and they are running their plants to the full capacity.

The San Francisco brick dealers have been talking over the matter of regulating the brick market for the benefit of all, but all discussion ended when the question was put, "What are you going to do with the 225,000,000 bricks of over-production?" It was suggested that each dealer should contribute a certain sum of money to a fund out of each thousand brick sold and when a small firm had to close down the owner would be supplied with a certain percentage according to the size of the plant. The plan was hardly thought feasible, but when taken to an attorney was given its death blow by being pronounced contrary to the Cartright anti-trust act. The discussions ended in the suggestion of one of the dealers, who said that the only way out of the dilemma was for some capitalist to buy out all the brick companies in San Francisco and vicinity and to produce only enough brick as the market demanded.

There seems to be some demand for paving brick in the cities around the bay, but this is small in comparison with the street improvements in view for the summer months. The street railways in Oakland are improving all their lines with paving brick and the work is so satisfactory that this city and other cities in the vicinity are contemplating the use of brick paving as soon as the end of the rainy season comes.

The pressed brick market is comparatively strong and the demand is great. The building activity now going on is keeping the local kilns going and the work which will come with the completion of building plans and good weather is expected to keep the price strong.

The Vallejo Brick and Tile Company, Consolidated, is now completing the last eight chambers of the sixteen-chamber down-draft kiln, and when all is complete the output will be increased to 40,000 bricks a day. The company is selling out all the seconds manufactured by the plant for sewer work in San Francisco.

The Golden Gate Brick Company held its annual meeting of the stockholders on January 28 and the following officers were elected: William G. Uridge, president; Frank Rehorn, vice-president; C. F. Pratt, secretary and manager. The reports showed a fine year for 1909 and a large dividend was declared. The stockholders also passed resolutions favoring the extension of the spur track to care for the increased brick and sand shipments of the plant.

N. Clark & Sons are shipping pressed brick for the twelve-story First National Bank building in San Jose, Cal., and terra cotta for the Elko County Court House in Elko, Nev. The company is also executing an order for a cream color matt enameled glaze brick to the Walker building of eight stories on Powell street between Ellis and O'Farrell streets in this city and white enameled glaze brick for the six-story Wall

building on O'Farrell street between Stockton and Powell streets.

The El Centro, Cal., plant of the Simons Brick Company, which started in operation a short time ago, is now running at full capacity.

Richard York, of Yerba City, Cal., has bought the brick yard of H. S. Patterson, at Sunset, Cal.

The Pressed Brick and Supply Company, of Vallejo, Cal., has been awarded the contract for supplying 210,000 bricks, which are to be used at the new naval station at Pearl Harbor, Hawaii, by the Scofield Construction Company.

The Spokane Asbestos Fire Brick Company, of Spokane, Wash., has been formed for the purpose of quarrying an asbestos deposit near Pasco, Wash. C. E. Horton and H. B. Arnold, the two leading promoters, have bought a factory site and have secured a shipping point.

The city of Portland, Ore., is planning improvements on all the principal streets of the city during the next few months. Six hundred tons of paving brick were brought by steamer from San Pedro in southern California to Portland, and it is understood that many more shipments are to follow from this port and from San Francisco.

The King City Brick and Enamel Company, of King City, Cal., are making great headway on the new plant. The buildings have been completed and the machinery is on the way from the East, and the management expects the plant to be running by March 1.

George Briggs, of Globe, Ariz., has purchased a tract of land at Geronimo, Ariz., and will immediately start the erection of kilns for a brick plant with a capacity of 4,000,000 bricks for the season.

SUNSET.

BUFFALO BRICK AND BUILDING NEWS.

BUFFALO BRICK MANUFACTURERS are much pleased that agreements signed not so long ago by the officers of the Builders' Exchange of this city and the heads of the carpenters' and bricklayers' unions have caused a condition of peace to exist in the building trades which promises to continue for two years at least. Secretary James M. Carter, of the Builders' Exchange, is authority for the statement that present conditions are satisfactory and that the greatest of harmony exists between the two bodies. About 3,000 men were affected by the signing of the contracts. These agreements carried a substantial increase in wages. The bricklayers receiving 55 cents an hour will get 60 cents on May 1, this scale to continue in force until January 1, 1912. More than 1,000 bricklayers are affected. The bricklayers' contract was signed by B. I. Crooker, chairman, and Mr. Carter, secretary, of the Mason Contractors' Association.

"Everything is in splendid working order at present," said Secretary Carter. There is no objection from either side. The agreements are satisfactory to the contractors of brick work and the journeymen. The officers of the Builders' Exchange now feel that while Buffalo has a fairly high scale of wages, it is still a shade lower than the wages paid in other cities. The contracts are fairly advantageous to the men, and we hope to maintain the same peace and harmony in the building industry that is characteristic of this city."

John H. Black, the well-known brick man, is away from Buffalo on a business and pleasure trip. He attended the convention of brick men in Pittsburg. He will take a trip South before his return to Buffalo. He will be gone for at least four weeks. At Mr. Black's office business was reported to be splendid.

A change in the management of the Lyth Tile Company, with offices at No. 668 Ellicott Square, is announced, Albert W. Candee having been superseded in the management of the company's affairs by W. W. Chamberlain. The reason for the change is not given out, and the statement was made at the Lyth offices that the change being only a private business transaction no comment was necessary. Mr. Chamberlain is a well-known Buffalo man and is reputed to be thoroughly conversant with the brick and tile business. This statement was made by Miss Miller, head bookkeeper: "Business is good; very good, indeed. We have enough work on our hands to keep our factory at Angola, N. Y., going at full force for the next five months at least."

KNICKERBOCKER.

DISCARD YOUR REPRESSES

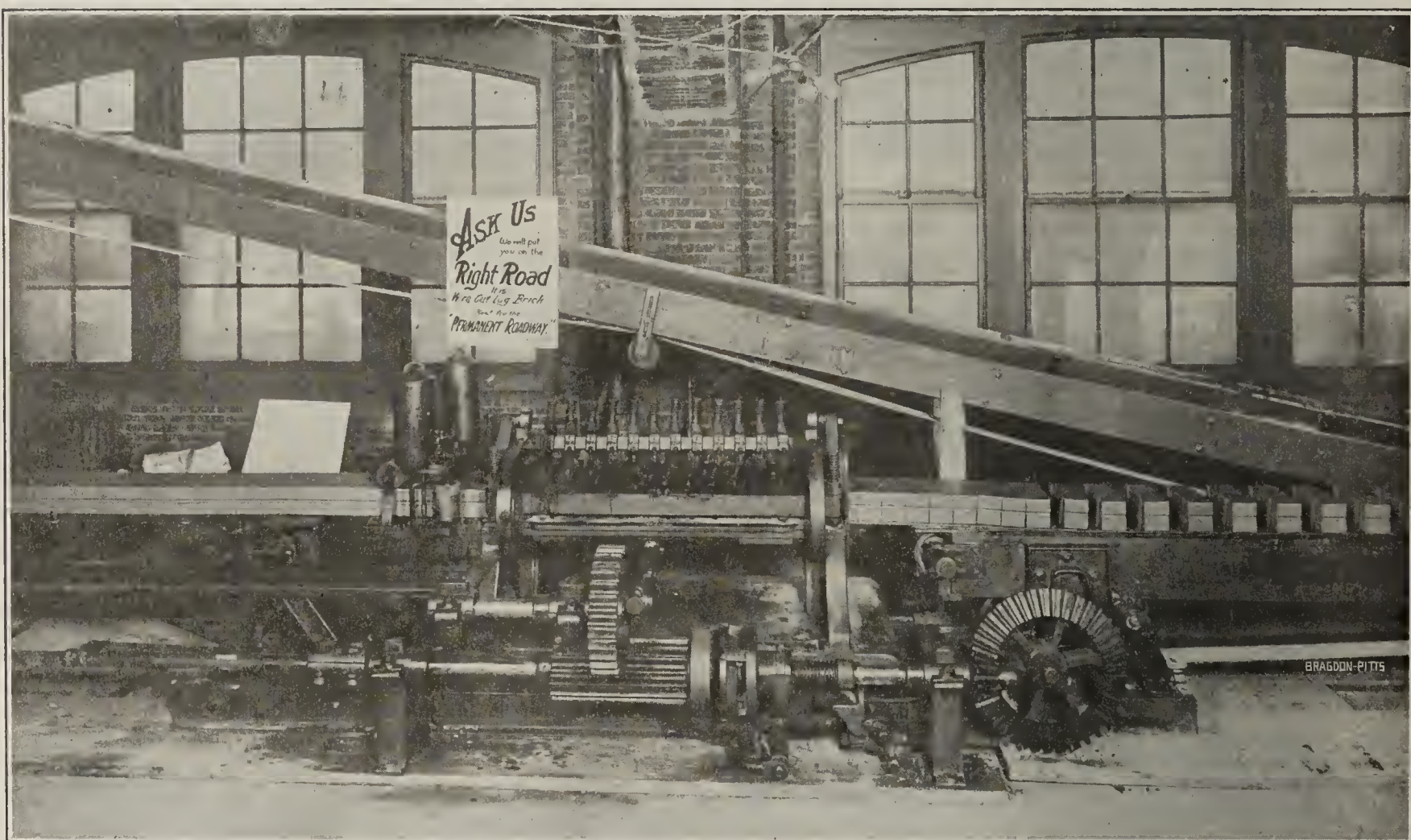
Wire-Cut brick with Lugs, round edges of various radii, and bearing the maker's brand were actually made at the Pittsburg National Convention on the *simplest cutter ever designed*. If you did not attend the Convention, ask anyone who did.

This cutter will also make face brick with as perfect square edges as can be formed in a repress, and the brick is not injured as is necessary in repressing. It is absolutely impossible to cut a crooked brick.

Many people doubted the statements we have heretofore made, and for this reason we decided to "show them." We therefore installed a complete equipment in a power building and shipped in ground shale from a paving brick factory. With electric power we made wire-cut brick with and without lugs, with both square and round edges and with grooves and brands on the ends, and the unanimous verdict of the manufacturers was that we had proven our claims.

Everyone was surprised at the extreme simplicity of the cutter, as there are many less parts in our cutter, which accomplishes so much, than there are in the standard automatic cutters which cut only plain brick.

One of the largest paving brick manufacturers admitted our claims, but said we were a year or more ahead of the times, as it would take that long to get specifications revised to admit Wire-



Cut-Lug Brick, at least on an equal basis with repressed brick. We find, however, that we are only up to date, as Wire-Cut Lug Brick are already admitted in New York, Pennsylvania and Ohio State Highway Work, and in the following cities:

Champaign, Ill., Bloomington, Ill., Baltimore, Md., Grand Rapids, Mich., Lansing, Mich., Port Huron, Mich., St. Louis, Mo., Jersey City, N. J., Plainfield, N. J., Rochester, N. Y., Conneaut, Ohio, Findlay, Ohio, Altoona, Pa., Carlisle, Pa., Norristown, Pa., Oil City, Pa., Memphis, Tenn., Danville, Va., Erie, Pa., St. Petersburg, Fla.

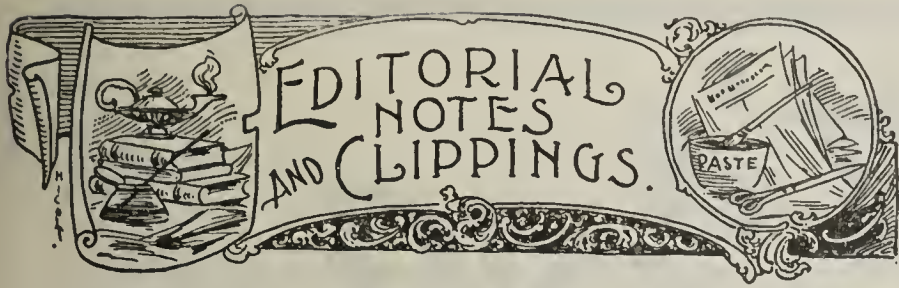
In any case they must, of course, stand the usual physical tests prescribed for repressed brick, but the fact is now generally admitted that the quality of Wire-Cut-Lug Brick or Block is superior to that of repressed.

We are now closing contracts with the manufacturers, licensing them to make and sell this brick, and have closed with some of the most prominent paving brick manufacturers.

Better get in line and ask for our proposition.

The Dunn Wire-Cut-Lug Brick Company

Conneaut, Ohio



H. J. Hart contemplates the establishment of a brick plant at Ada, Minn.

Otto and C. Lewis Ahrens, will erect a brick factory at Basin, Wyo., of 30,000 daily capacity.

F. J. Jewell and Nelson Adams have purchased the brick-making business of the late Lester E. Betson, at Rome, N. Y.

Thendrick & Thies Brick Company, Jacksonville, Ill., are in the market for a second-hand soft mud brick machine, sander and molds.

The brick plant at South Amherst, Mass., long owned by Marcy & Gardner, has been purchased by George Dow and W. C. Atwater, of New Haven, Conn.

John Gilman, Greeley, Colo., writes that he has read THE CLAY-WORKER for a number of years, and that he considers the last January issue the banner number of them all.

Freyer & Bridenstine will make a number of improvements in their brick and tile plant at Kalona, Iowa, and with that end in view will reorganize and recapitalize their company.

Joseph Oswald, a contractor and builder of Newark, N. J., has taken over the property of the Lupton-Bushnell brick yard at Cliffwood, N. J., and will operate the plant to full capacity.

Estimates in the hands of the Louisville, Ky., Board of Public Works show that 250,000 vitrified brick will be necessary for the paving of streets this year. The contracts for this work will be let within a few days.

A company is being organized for the purpose of erecting a large vitrified shale paving plant at Germantown, N. Y., where an immense tract of shale has been purchased for that purpose by C. T. Willard, of New York City.

Eben Rodgers, general manager of the Alton Brick Company, Alton, Ill., sustained a painful injury in stepping from a moving train, which kept him home from the Pittsburgh convention and will probably keep him housed for some time.

Hector C. Adam, 2302 Penn avenue, Pittsburgh, Pa., has been appointed representative of the American Blower Company, of St. Louis, Mo., for Pittsburgh and vicinity. Mr. Adams is a thorough engineer and has had much experience in pulverizing machinery.

Dominic Stifney, an employe of the Breadford Pressed Brick Company, at Lewis Run, Pa., was killed by being caught in a cave-in at the clay bank. It took half a dozen men more than half an hour to extricate the remains. Another workman who was in the pit escaped.

The Marion Brick Company, Marion, Ind., after having been idle for eighteen months, will resume operations March 1. When the company closed down 6,000,000 brick were piled up under the sheds, all of which have been sold, and the company's books are now filled with orders.

Sales of brick by the Illinois Brick Company have been large since January 1 and no contracts have been taken under \$6 per 1,000. The concern has no contracts at lower prices and its supply of product is fair and seasonable. The demand is large and bids fair to continue so throughout the year.

Charles G. Heydmann, who brought suit against the Red Wing (Minn.) Brick Company for recovery of damages due to an accident sustained by him while at work for that company last summer, has just been given a verdict for \$3,000 in the district court. He sued for \$6,000. The case will probably be appealed.

Frank B. Dunn, manager of the Dunn Wire-Cut Lug Brick Company, Conneaut, Ohio, writes that they found it necessary to leave their exhibit at the Phipps Power building, Pittsburgh, Pa., which was in daily operation during the convention, in place, and made arrangements to operate same the latter part of the month for brickmakers from Indiana, West Virginia and the East, who were to make a special trip to see the machine in operation. Mr. Dunn is well pleased with the convention, which he says brought him "lots of

business," having closed a number of contracts licensing the manufacture of the wire-cut lug brick.

Otis U. Walker, secretary of the Alliance Clay Products Company, Alliance, Ohio, died at his home in that city January 29.

The United States Porcelain Company, of Findlay, Ohio, has bought the plant of the Superior Porcelain Company at New Cumberland, W. Va.

Frank M. Jarvis has sold his brick yard and plant at Chewelah, Wash., to John Kreller, of Hillyard, for \$18,000. Mr. Kreller will add new machinery. He will ship much of his products to Spokane.

Stahl Brothers have purchased the brick plant of L. J. Forsman, at Thorsby, Ala., which includes forty acres of land containing a large deposit of very superior clay. New machinery will be installed.

Joseph A. Tormey announces that he has severed his connection with Mr. S. B. Dobbs and has opened offices of his own at 328 N. Charles street, Baltimore, Md. He will handle a high grade face brick.

The plant of the Windsor Brick Company, Akron, Ohio, was totally destroyed by fire early in February. The fire, which caused a loss of \$50,000, is said to have been caused by tramps who had been refused a place to sleep during the night.

Sixty girls and men employed in the decorating department of the D. E. McNichol pottery, East Liverpool, Ohio, had a narrow escape from death recently when escaping gas caught fire and exploded. Three were seriously injured. The building was destroyed.

The Ferris Paving Brick Company, of Mechanicville, N. Y., it is said, broke all its records recently for a single day's brick shipment from Mechanicville. The shipment included fourteen large capacity cars, with a total of 217,000 bricks. The company recently increased the capacity of its plant from 42,000 to 84,000 bricks a day.

The C. P. Mayer Brick Company has arranged for the erection of two additional kilns at its plant at Bridgeville, Pa., and other improvements that will increase its capacity of 50,000 bricks daily. A large storage building will be erected and electrical motive machinery installed. The cost of the improvements is estimated at \$10,000.

The capital stock of the Crooksville Clay Products Company, which was incorporated at Columbus, Ohio, is \$20,000, and the incorporators are: W. J. Cannon, John E. Taylor, George S. Brush, of Zanesville, and others. The company has leased the Diamond pottery plant at Crooksville and operations will be started March 1, after extensive improvements have been made.

Upon petition of Warren B. Ferris, a stockholder, the affairs of the Devonshire Brick and Ceramic Company, which owns a plant at Roseville, Ohio, was thrown into the hands of a receiver. The petition was filed in the Franklin county common pleas court at Columbus and Robert E. Kelly was appointed receiver. The Devonshire company purchased the plant of the Buckeye Paving Brick Company several years ago, but the property has been idle for the past two years.

Articles of incorporation of the North Hudson Brick Company have been filed. The company will engage in the manufacture of brick and tile, also carry on a general building material business at Newburg, N. Y., with offices at Union Hill, N. J. The capital is placed at \$500,000, divided into 5,000 shares of the par value of \$100. The incorporators are Hiram H. Walsh, Newburg, N. Y.; Joseph Kinzley, Jr., Hackensack; Carroll G. Von Hess, Newburg; John Conway, Louis Haas and Herman Koch, of Union Hill.

The Moores-Coney Company, of Cincinnati, Ohio, wholesale dealers in lime, cement and brick and builders' supplies, has purchased the controlling interest in the Harris Brick Company at Zanesville, Ohio, and an entire new line of brick machinery is being installed to manufacture the Harris pavers. The plant should be in operation about April 1. Mr. Ellsworth Ogden, of Columbus, Ohio, who has had a wide experience in the brick business, is in charge of the reconstruction and will remain in charge of the plant. Mr. Peter Gorter will have charge of the sales department. The plant is located on the Belt Line, with direct connection with the B. & O., Hocking Valley, Pennsylvania and the Wabash systems, thus conferring the best shipping facilities. Harris

(Continued on Page 339.)



Barrett's PAVING PITCH



Groveland Avenue, Chicago, Ill., Brick Pavement Filled With Barrett's Paving Pitch in 1896.

Better Than Cement, Asphalt or Sand

It is merely a question of knowing the properties of the different pavement fillers before the decision is given in favor of Pitch.

There are certain qualities which are absolutely necessary to make the filler thoroughly efficient. For instance:

Cement
Lacks Elasticity

When the paving blocks expand in warm weather something has to give. The cement has "set"—it can't "give," so the whole pavement bulges up, resulting in "blow-outs" and large cracks.

Asphalt
Lacks Adhesiveness

Asphalt will yield to expansion, but is not adhesive enough to cling tightly to the pavement blocks as they contract. The interstices thus formed allow water and filth to penetrate to the roadbed, causing rapid deterioration.

Sand
Not Waterproof

Sand provides for expansion and contraction, but that is all. It does not protect the roadbed in any way. Water and frost cause endless destruction.

Barrett's Paving Pitch is fitted by Nature to be a perfect pavement filler. It lacks none of the essential requirements.

Pitch is elastic, allowing for both expansion and contraction. It is adhesive. It keeps the joints permanently waterproof because it never loses its waterproof qualities.

Booklet free on request

BARRETT MANUFACTURING COMPANY

New York
Cleveland

Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
London, England

EDITORIAL NOTES AND CLIPPINGS—Continued.

pavers have always had a good reputation and the new firm will keep the product up to the standard.

The Cliffwood (N. J.) Brick Company has installed a King dryer with a capacity of 60,000 brick every twenty-four hours.

The Shaw Watts & Bateman Brick Company has been incorporated to manufacture brick at Williamstown, N. J., and will purchase new machinery.

The Fond du Lac Pressed Brick Company, Fond du Lac, Wis., will increase the capacity of their plant from 3,000,000 to 6,000,000 the coming year. This will necessitate the erection of more kilns and the installation of additional machinery.

E. E. Evans, mayor of Bay City, Mich., has purchased an interest in the Spear brick plant at Toledo, Ohio, and the firm will in the future be known as the Spear-Evans Company. After his term of office as mayor expires, Mr. Evans expects to move to Toledo.

James Riley, one of the members of the contracting firm of Riley Brothers, of West Chester, Pa., has purchased the brick manufacturing plant and fixtures of H. R. Guss & Son, and taken a lease on the ground for a term of years and will immediately take possession of and inaugurate a number of changes at the same.

Klein Brothers, brick manufacturers, of Chaska, Minn., have purchased the three-fourths interest of Philip Riedele in the Riedele & Caspar brick yard at Chaskam, Mr. C. J. Caspar retaining his interest in the company. The Klein Brothers now own three yards, with a yearly capacity of 40,000,000 brick.

Joseph Snyder, a Polish workman at the Ohio Valley Clay Works, Steubenville, Ohio, was painfully injured in an elevator accident at that plant when the elevator took a long drop. He was taking a wagon load of clay up on the elevator and at the fourth floor the wire rope suddenly slipped and the cage went to the bottom with a hard bump. Snyder sustained an injury to his back and head.

The Salem (Ore.) Tile and Mercantile Company has taken over the factory of the Salem Tile Company, formerly owned by J. E. Murphy and is preparing for an unusually busy season. The company will run its factory both summer and winter and will enlarge on the present quarters so as to more than double the previous output. Everything manufactured from clay will be made in the new factory.

A verdict of \$4,000 was recently rendered in the suit for the recovery of \$10,000 brought by James W. McGovern against the Excelsior Brick Company, of Haverstraw, for the death of his father, Bartholomew, who was killed about five years ago in a landslide which, it is claimed, was caused by the company undermining the cliffs at Haverstraw. This is the first successful action in fifteen which have been instituted against the defendant company for deaths caused at that time.

The Thomaston Face and Ornamental Brick Company, of Thomaston, Maine, has been reorganized and will hereafter transact business under the name of the Thomaston Brick Company. Among other improvements, two brick kilns of 200,000 capacity each will be erected. An order has already been placed with the company for 5,000,000 brick. The officers of the company are: Lewis N. Wheelock, of Claremont, N. H., president and general manager; Arthur L. Norton, Boston, treasurer; Ritson Dixon, Mansfield, Mass., secretary and vice-president.

The Alumina Shale Brick Company, Bradford, Pa., at a recent annual meeting elected the following directors: Thomas Melvin, John P. Melvin, W. W. Bell, W. M. Kincaid and A. P. McConnell. The directors have elected the following officers: President, W. W. Bell; vice-president, A. P. McConnell; secretary and general manager, C. C. Stratton. At this meeting it was decided to build new kilns at both the Alumina and the P. B. Broughton plants and make other improvements. The two plants are expected to have a capacity of 30,000 brick a day.

The Morris-Small Company has been incorporated and is building a plant at Columbus, Ga., for the manufacture of sewer and railroad culvert pipe, wall coping, ridge tile and other clay products. The plant, which will consist of a main building, 60x400 feet, two stories high and a machine room 40x40 and boiler room 20x30, will be of fireproof construction.

All machinery will be operated with electricity, except the sewer pipe press.

John Groch, an employe at the Deckman-Duty brick plant at Collingwood, Ohio, fell over a thirty-five foot embankment at the clay bank and was seriously injured.

At a recent meeting of the stockholders of the Rose Brick Company, Roseton, N. Y., the following directors were elected to serve for the ensuing year: John B. Rose, Mrs. A. J. R. Seidler, Everett Fowler, Dr. C. E. Townsend and William H. Hilton.

It is announced that the Carolina Brick and Tile Company, of Charlotte, will erect in Greenville, S. C., at once a unit brick plant of 30,000 capacity. The company has the contract to furnish brick for the big steam plant of the Southern Power Company.

The Plymouth Brick and Tile Manufacturing Company, of Plymouth, N. C., has been chartered for the purpose of manufacturing and dealing in brick and tiling. The authorized capital stock is \$50,000. W. C. Miller, E. P. Cohoon and F. E. Cohoon are the incorporators.

Henry Arnold, of Atlanta, Ga., writes that he and J. R. Griffen, of Itasca, Texas, who is president of a syndicate operating in Vera Cruz Republic, Mexico, contemplate the establishment of a building brick plant in the latter country, and will be pleased to receive estimates on both horse power and steam power equipment for a soft mud brick plant.

The Sprang Clay Products Company has been organized by M. J. Sprang, of Sheldon, Ind.; Will C. Geake, Frank E. Stouder, F. W. Freese and Robert Bradshaw, of Fort Wayne, Ind. Mr. Sprang is president of the company and W. C. Geake is secretary and treasurer. The concern will take over the Sprang drain tile mill at Sheldon and the Burdoyne drain tile mill at Sheldon. It is planned by the company to greatly improve its plants and also to greatly extend the business.

Alleged unfair trade competition and alleged infringement of copyright on a trade catalog are the charges in a suit brought in the United States circuit court against the Southern Clay Manufacturing Company and W. M. Lasly and T. H. Lasly by the firm of Fiske & Co. (Inc.) and J. Parker B. Fiske, of Boston and New York. A temporary restraining order was granted by the court enjoining the defendants from further distribution of the alleged infringing catalogs or pamphlets, also an order authorizing the seizure of any of the same catalogs or pamphlets that may be found in any of the offices of the defendants. Fiske & Co. are one of the oldest and best known manufacturers of brick and brick work in the country and issue one of the finest and most complete trade catalogs in the whole country, bearing fine engravings. All of this is protected by the United States copyright laws. The papers, which have been filed in the suit, allege that the Southern Clay Manufacturing Company have issued catalogs or pamphlets bearing exact photographic reproductions of the engravings in the catalog of Fiske & Co., in direct violation of the copyright law. The plaintiffs charge that this is unfair trade competition, and they ask that the Chattanooga firm be restrained from sending out any more of the alleged infringing printed matter.

Stolp & Wiederhold

CERAMIC ENGINEERS

PRACTICAL ADVISERS. SPECIALTY—
ROOFING TILE. REMODELING AND
EXTENSION OF BRICK PLANTS.

OFFICE

82 ILLINOIS ST. CHICAGO HEIGHTS, ILL.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each Insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—Position as manager in sales department. by young man who understands fire brick business. Address, Box 2—A. D.
21 c Care Clay-Worker.

VIRGINIA.

FOR SALE—Best brick plant in eastern Virginia; 50,000 daily capacity. For particulars apply to MOTTU & CO.,
21 cm Norfolk, Va.

FOR SALE.

Modern brick plant in a live city. For further particulars address,
21 dm IRA H. CRUM, Rec., Columbus, Ohio.

WANTED—Position by a practical, reliable man familiar with all details in manufacturing dry press, stiff and soft mud brick. Address Box 2—E. H.
21 c Care Clay-Worker.

WANTED.

Setter for stiff-mud face brick in Haigh semi-continuous kiln. Man must be thoroughly experienced. Send references, state experience fully and salary.
21 d ASHAWAY CLAY CO., Ashaway, R. I.

FOR SALE—BRICK PLANT.

Large capacity, 250 H. P. Corliss engine, boilers, steam shovel, etc. Prefer to sell as a whole at special price. For full information address CHASE BRICK CO.,
21 d 3606 Grand Ave., Milwaukee, Wis.

WANTED.

A first-class building and face brick burner, competent to take charge of large number round down-draft kilns. Address, giving age, reference and experience,
21 d Box 2—F. W. B. Care Clay-Worker.

FOR SALE.

1 9-ft. Frost dry pan.
1 Brewer automatic cutting table.
1 American Giant brick machine.
2 Eagle represses.
80 Iron cars.
1800 feet 30 lb. track.
All in good condition, ready for operation.
21 cm Address Box 2—N. A. K. Care Clay-Worker.

BRICK MACHINERY FOR SALE.

Renneburg 4 ft. 6 in. direct heat rotary dryer 40 ft. long; Richardson automatic scale, 400 lbs. capacity; Penfield pug mill, wet pans, dry pans; No. 20A plunger machine, automatic shovel, No. 10 auger machine, sewer pipe press, Raymond "Columbia" steam press, No. 3 "Perfection" Carnell hand presses; 237 double six deck brick cars 33 in. gauge, 7 transfer cars, 4 turn tables; 6,000 gauge 1 steel pallets, rolled edges; 2,000 yards 12-lb. track; 2 No. 51 two-way steel dump cars, 30 in. gauge, and portable track; 100-light Colt's acetylene gas machine, 310 ft. Jeffrey No. 110 chain pan conveyor. Address,
22 d Box 414, Richmond, Va.

WANTED—To buy steam pipe dryer and pallets to hold 30,000 to 40,000 brick. Must be in good condition. Address Brick Works, 27th and Westmoreland Sts.,
21 c Philadelphia, Pa.

WANTED—A man competent to take entire charge of brick plant; first-class man is required; references necessary. Address, Box 24,
21 d Hoosick Falls, N. Y.

FOR SALE—A paving brick plant, well equipped with an abundance of good shale, and splendid market. Address, Box 2—W. M.
21 d Care Clay-Worker.

TILE PLANTS BOUGHT AND SOLD.

If you have a plant to sell or desire to purchase one or invest in the business you are invited to correspond with
211 p D. E. CHILD & SONS, Findlay, Ohio.

WANTED.

A practical and experienced man as superintendent of a paving brick plant. Also a good burner experienced in burning vitrified shale brick in down-draft kiln. Only high class men need apply. Address, Box 2—M. P. B.
21 d Care Clay-Worker.

WANTED.

CAPITAL—Exceptionally good opportunity to invest from \$1,000 to \$5,000 with me in the electrical porcelain business. This is a straight business proposition and will bear careful investigation. Address, CERAMIC ENGINEER,
21 cm Box 213, Columbus, Ohio.

FOR SALE OR TRADE.

One Martin soft-mud brick machine; cost \$450, when new. Capacity, 25,000 brick per day. Used two seasons. Will trade for anything useful or sell on time with note at good security. Reason for selling, we are installing stiff-mud machinery. Address BOX 1—LEWIS,
1 3 cm Care Clay-Worker.

FOR SALE.

One Raymond 777 auger brick machine with side-cut die.
One No. 2 rotary automatic cutting table with extra set of platens and 25-foot carrier belt.
One Victor repress with extra set of molds.
One No. 10 Cyclone disintegrator, all in good condition, used but one year. Will be sold cheap, owing to entire change of system. MOUNTVILLE BRICK CO.,
1 2 d Mountville, Pa.

BRICK PLANT FOR SALE.

Good Reasons for Selling at a Sacrifice.
Located twenty miles from Indianapolis in a county seat town. Complete with 50 h. p. engine and large boiler. Quaker brick machine, pugmill, disintegrator, dirt car, car hoist, wheel scraper, mold sander, sand dryer, pallets, dry racks. One 250,000 capacity kiln equipped with Swift furnaces; fourteen acres of land adjoining railroad, making good shipping facilities. Would trade for farm or good city property. Address SMITH AND YARGER,
231 Lemcke Bld., Indianapolis, Ind.

\$4,000 SALARY

and 10 per cent. dividends to a thoroughly competent fire brick manufacturer who can control \$60,000 to \$90,000 cash in purchasing successful plants. Address, F. M. SAVAGE,
2 3 cm Joliet, Ill.

A PRACTICAL BRICKMAKER WANTED.

A working foreman who can handle a Henry Martin soft mud machine and a small crew of men. Work the year round for the right kind of a man. State wages desired. Box 2—J. G.
2 2 cm Care Clay-Worker.

FOR SALE.

Potts machine, disintegrator and sander with molds. New 20-inch belting, feed water heaters, pumps, cast iron yokes for Barron cars and 125 H. P. Buckeye engine. Address, Box 2—H. D.
2 3 d Care Clay-Worker.

FOR SALE—Modern soft-mud brick plant, 30,000 capacity. New Potts outfit. Abundance of clay for red or cream brick. Rack and pallet system, Martin dryer, up-draft kilns, private switch, etc.
12 3 c ZERRENNER BROS., New London, Wis.

FOR SALE—BRICK PLANT.

Has been in operation for 40 years. Has an abundance of shale for the manufacture of building, face and vitrified brick. Equipped with stiff mud machinery. Located in eastern Pennsylvania, 80 miles from Philadelphia, in a town of 15,000.
21 cm COLUMBIA BRICK CO., Columbia, Pa.

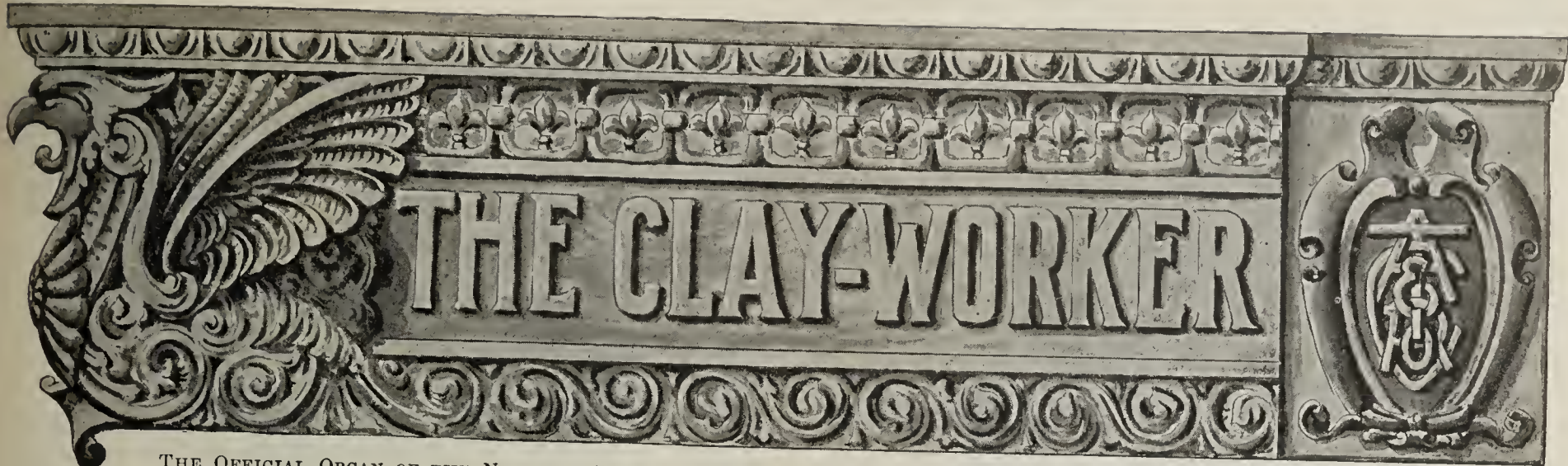
WANTED—Situation as superintendent or manager of a clayworking plant. Applicant has practical experience in the manufacture of face and paving brick, stiff-mud process, hollow goods, sewer pipe, drain tile and electrical conduits. Also technical training in other branches of the clay industry. First-class references. BOX 1—L. S.,
1 4 c Care Clay-Worker.

WANTED.

Thoroughly experienced man as assistant superintendent of old, high-class clayworking establishment in the east. Good general knowledge of up-to-date methods along practical, technical and mechanical lines. Give experience in detail, also age, salary expected and references. BOX 1—ALPHA,
1 3 d Care Clay-Worker.

FOR SALE CHEAP.

One large Hercules soft-mud brick machine; one Horton mold sander; one revolving dump table; one mold washer; six dozen standard size brick molds; lot of 2-inch shafting; lot of 3-inch shafting; one Cleveland steel dump car; one Ericson large size hot air pumping engine; one sand dryer, latest design, complete; several thousand foot pallets for handling six brick; one side-cut brick cutting table; one end-cut brick cutting table; one 20 h. p. engine; one Bensing automatic cutting table; one feed grinder.
All above machinery is in fine condition and practically as good as new. As it is in our way and we wish to remove it, will sell at an extremely low figure. AMERICAN BRICK AND TILE CO.,
1 2 c Morenci, Mich.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

VOL. LIII,

INDIANAPOLIS, IND., MARCH, 1910.

No. 3.

WHY NOT ARTISTIC SCHOOL BUILDINGS?

Examples of Modern Type in Ohio's Metropolis, Where Brick Are Used Almost Exclusively.

AS A DECORATIVE MATERIAL, considering its economy and the wide range of color effects possible, as well as the easiness with which it may be adjusted to the ideas of the architect, brick excels all others for use in the construction of public schools."

This is the opinion expressed by Frank S. Barnum, architect for the public school buildings of Cleveland, some of which are regarded as the finest in existence. One building in particular, which was designed by Mr. Barnum and his staff, was declared by a congressional commission appointed to investigate school buildings as being a model of its kind.

With one exception, the ninety school buildings in Cleveland are all of brick. During the past ten years there has been a great revolution, however, in the use of this brick. In former days it was thrown together in a careless manner. More attention was given to gothic towers and frills about the roof than in the artistic placing of the warm, interesting bricks of which the walls were built.

Now it is different. With improved methods of manufacturing brick and a consequent improvement in the finished product, greater care is now exercised in planning the buildings which are to house the youth of the land.

After many years of experience in the exclusive construction of school buildings, Mr. Barnum says that he is confident that the use of brick will become even greater in the future than in the past. This is because of its adaptability and cheapness.

"Even if concrete schools could be put up as cheaply as



Glenville High School, Cleveland, Ohio.

brick, which they can not, the effects would never be as good," declares Mr. Barnum. He is also a warm friend of terra cotta, declaring that were he given his choice between terra cotta and granite for trimming school buildings he would take the terra cotta.

"The lasting qualities of terra cotta, which is really a form of brick, and the easiness with which it may be applied to any color scheme makes it an unusually valuable material in the construction of school buildings," he says. "The ability to color it to match the delicate hues of the brick used in the walls is a quality to recommend it. I would prefer it even to granite, for, when properly made, terra cotta is impenetrable to the elements and keeps itself clean by natural action of the elements."

Not only is brick used for the exterior of all Cleveland schools, but it is also specified quite extensively for interior walls. In all the newer schools it is used for facing the

educational methods, but mainly to a growing public sentiment, that our public schools should embody the best in arrangement, construction, sanitary and physical equipment, together with due regard for quality of design.

"Probably no one will question the proposition that this is essentially an utilitarian age. A school building is a building erected for the purpose of work of the most serious and practical nature.

"The modern school building is of strictly fireproof construction; it is equipped with numerous and ample stairways and exits—its arrangement is carefully planned to conserve the time and energy of both pupils and teachers—it is amply and properly lighted, heated and ventilated.

"All these are essential to the efficient teaching and learning of the practical branches that constitute the simplest common school education. But the modern school building goes much further than this and provides a gymnasium



Hodge School, Cleveland. Substantial in Appearance and Fire-Proof.

basement playrooms, gymnasiums and in the case of the \$500,000 Technical High School it is used for the interior walls of all the shops. This is done, Mr. Barnum avers, because it has a non-absorbent surface and is sanitary.

That school buildings should reflect an artistic tendency is the firm opinion of Mr. Barnum, who declares that enough attention is not given to the æsthetic side of life when public buildings are concerned. He maintains that the public buildings of a city should be absolutely the best ones the community affords. While stone sometimes is used for monumental structures, Mr. Barnum favors brick for school buildings for reasons heretofore stated.

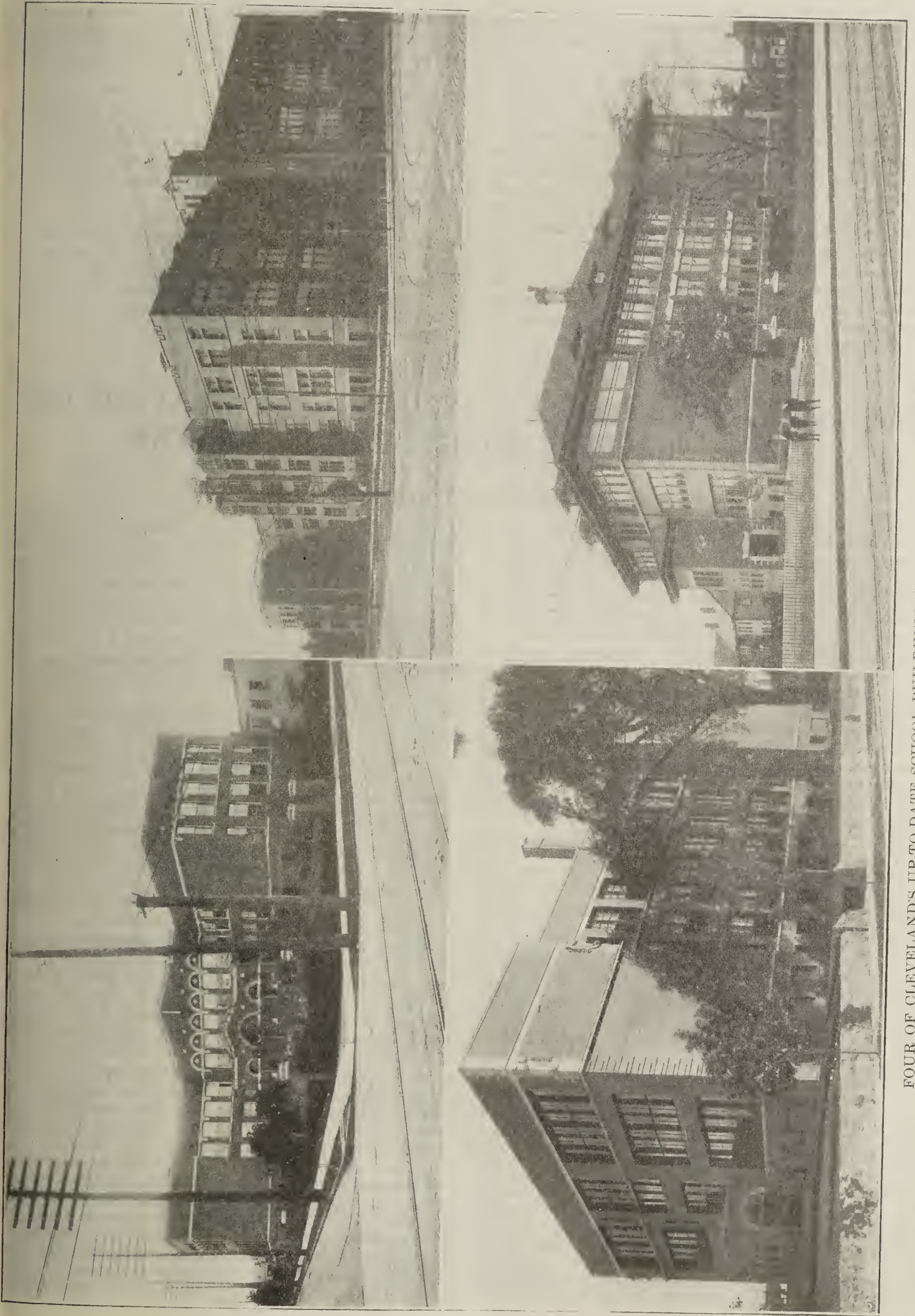
"During the past ten years," said Mr. Barnum to THE CLAY-WORKER representative, "the design and plan of the typical, up-to-date school building has undergone radical changes. These changes are but slightly due to changes in

equipped for systematic exercise, an assembly room of capacity equal to that of the school and often shower baths with adjacent dressing rooms and clothes lockers.

"In the later buildings rooms are provided for medical dispensaries and for medical and the simpler forms of surgical examinations.

"Most of these provisions have to do directly with the physical welfare of the pupil, but they are justified upon the ground that perfect intellectual development is dependent upon perfect physical development. A sound, trained and well-balanced mind is scarcely possible except in a sound, well-developed body.

"With all these provisions for our children's welfare in the development of their bodies and minds, one side of their natures is left untouched. This is the æsthetic. The love of the beautiful is just beginning to be given its important



FOUR OF CLEVELAND'S UP-TO-DATE SCHOOL BUILDINGS, OF WHICH ANY CITY MIGHT BE PROUD.

and proper place in their education; and as this sense, so far as beauty in the common acceptance of the word is concerned, must be cultivated solely through the eye, it would seem to be important that every means be taken to reflect it in the buildings in which they are trained for their future occupations in life."

Mr. Barnum draws attention to the change in the style of architecture in schools in recent years. A decade ago any architect who would attempt to construct a school building with a flat roof would have been laughed out of the business. Yet there are schools with flat roofs in Cleveland which are artistic and charming. Mr. Barnum says he rather favors the use of the flat roof, as it saves several thousand dollars in the initial cost and the space enclosed by the pitched roof is of no value anyway.

One of the most unique schools in existence was built in Cleveland a year or two ago. It is the Watterson school on Detroit avenue. The board found that it had a corner lot and was unable to buy adjoining property to protect its light.

An unusually odd plan for the building was finally evolved. The sides of the building fronting on the adjoining lots have no windows in them at all—they are blank walls. All the light, as may be seen from the illustration, comes from the land owned by the board, which also serves the purpose of a playground.

In the construction of the big Technical High School, which fronts on an entire block, an effort has been made to get away from the mere architecture of a shop and technical building, and a few touches of the artistic have been added. The main entrance is of brown terra cotta to match the chocolate-colored brick which were used.

The Rosedale school was called the "model school building" by Prof. Chancellor, who was a member of a congressional committee appointed to look into the question of school architecture and sanitation. It has a flat roof, but looks unusually interesting notwithstanding. Considerable terra cotta was used for decorative purposes to relieve the somewhat severe lines of architecture.

SOME PROBLEMS OF THE CLAY INDUSTRY, AND WHAT THE GEOLOGICAL SURVEY IS DOING FOR THEIR SOLUTION.

By Dr. J. A. Holmes, Washington, D. C.*

Mr. President and Gentlemen of the Convention:

The work of the Geological Survey experiment station, located in Pittsburg, is under three specific appropriations—one for the investigation of fuels belonging to or for the use of the government, another for the investigation of mine explosions, their causes and prevention, and a third for the investigation of structural materials belonging to and for the use of the government.

The fuel investigations were begun at St. Louis in 1904 and have continued to the present time. The purposes of these investigations have been to obtain and publish certain fundamental information concerning the nature of the coals to be found in different parts of the country, and to determine how these coals can be used most efficiently. In one division of this work connected with the purchase of coal by the different branches of the government service specifications are drawn up, samples of the coals as delivered to the government are collected and analyzed, and each department of the government is notified as to the quality of the coals it is purchasing. In another division of the work investigations are conducted on both boiler and gas producer furnaces looking to the utilization of the low grade fuels of the country which are now being generally wasted, but which the government and the general public could use for many purposes. Another division conducts investigations with a view to solving certain intricate problems involved in the general combustion of fuels; while still another division is conducting elaborate chemical studies into the nature of coal, and how the qualities of the coals can be improved for different purposes through the admixture of limited quantities of other coals of different types. A part of these investigations, which were carried on for several years, and of special interest to the clayworkers, is the production and utilization of cheap producer gas in connection with the drying and burning of clay products of different types.

The mine explosion investigations were inaugurated in 1908 with a view to finding out the causes and possible means of preventing this type of mine disasters. In connection with these investigations one group of men devotes its atten-

tion to the analyzing and testing of the explosives now being manufactured for use in coal mines. Another group of men investigate the different types of mine lamps, different types of mine rescue apparatus, and possible improvements in the methods of mine rescue work; meanwhile, a group of mining engineers is conducting inquiries and investigations in the mines in different parts of the country with a view of determining the relations borne by the gas and inflammable dust to the mine disasters which may occur during the year in a number of different mines.

The investigation of structural materials is naturally divided into a division which examines the sands, gravels and stone, another division which investigates cements, concrete of different types, and a third division which investigates the clays and clay products.

In considering these investigations the fact should be kept in mind that the law limits the investigations to structural materials belonging to and for the use of the United States, and that before the investigations along any given line can be inaugurated there must be a request from one or more branches of the government service for such information as can be obtained, or such tests as can be made.

During the first two or three years after these investigations had begun the calls from government officers for tests and data related almost exclusively to concrete and reinforced concrete. During the past year we have noted a decided change. We are now receiving calls for information concerning all types of clay products, and because of this fact we have for a year or more been able to greatly enlarge the facilities and the personnel of the clay products division. We have been able to place the best man in the country (Bleininger) in charge of these investigations of clays and clay products. We have already given him several assistants and a considerable amount of equipment, and I trust that during the next fiscal year his facilities for research work can be still further and considerably enlarged. I appreciate most heartily the assurances from members of the National Brick Manufacturers' Association that they will co-operate with us in the accomplishment of this purpose.

Notwithstanding the fact that in these investigations we are limited to the materials belonging to and for the use of the government, the great variety of building and engineer-

*A paper read before the Twenty-fourth Annual Convention of the National Brick Manufacturers' Association of the United States of America, Pittsburg, Pa., February 7 to 10, 1910.

ing work carried on by the government in different parts of the country and under such different climatic and other conditions, calls for the use of a great variety of materials of many different types, and thus gives wide scope to the lines of investigations to be followed.

During 1909 and 1910 we are called upon to furnish to the supervising architect of the government information concerning clay products and other structural materials available for the use of the construction of more than 400 public buildings to be erected in different parts of the different states and territories. One of the most notable facts brought out in connection with these investigations and inquiries is the fact that in many large portions of the country no good building brick for outside work are manufactured, and consequently such brick must be transported by the railways for hundreds of miles from other regions or other states, if brick are to be used in the construction of buildings. Therefore, notwithstanding the great length of time during which building brick have been manufactured and used, it is apparent that many investigations into the character and distribution in the United States of building brick clays should be carried on in connection with this work.

The importance of this problem to the general public is realized more fully when it is understood that the losses to the people of the United States from the burning of wood frame houses during a single year now exceeds \$250,000,000; or if we include the amount of fire insurance paid in premiums over and above that which is returned in the form of insurance money and other incidental costs growing out of these fires the total loss to the people of the United States now yearly exceeds \$500,000,000. Everywhere our people should be encouraged to build their houses of materials that will not burn. In a recent series of journeys across England and Scotland I observed but one residence built of wood, and that was a small shepherd's cottage in the Scottish highlands. The houses in which the people lived in the city and country alike were constructed mainly of brick, with roofs of slate or tile. In view of these enormous fire losses and the growing scarcity of timber, let us hope that in the United States the homes of our people may hereafter be constructed mainly of fireproof materials.

General Nature of the Government Work.

The work which Mr. Bleininger and his associates are called upon to do for the government includes many different phases of the subject:

- (1) The testing of building brick, fireproofing material, fire brick, hollow blocks, conduits, sewer pipe, roofing tile, terra cotta, wall and floor tiles, sanitary ware and electric porcelains.
- (2) Certain general investigation work intended to be the basis of specifications and general rules to be followed in the purchase and use of clay products.
- (3) The testing of clays as to their properties and availability for different purposes, as found on the lands belonging to the government, and the development of proper clay tests in connection with the uses for which clays are employed.
- (4) Possible changes in the methods of burning and other processes of manufacture with a view to better adaptability of certain clay products to uses for which the government needs them.

Some Results Accomplished.

During the past year the clay products section has carried forward a number of investigations and has already accomplished certain important results:

- (1) A series of tests have been made relative to the crushing strength of bricks and clay cylinders burnt at different temperatures. This will give the various government bureaus data on which to base specifications, and at the

same time it will give interesting information as to the relations existing between the porosity of clay products as measured by water absorption and crushing strength.

- (2) Extensive researches have been conducted on behavior of fire brick at moderate furnace temperatures and under load conditions. These have brought out interesting results which will enable the government to select refractory products from a larger number of manufacturers than was formerly considered permissible. At the same time information has been obtained which will be of considerable value to fire brick manufacturers, showing in what respect their products may be improved.

- (3) The preparation of surface clays has been studied, and, among other things, it has been found that a number of clays which it was impossible to dry satisfactorily in the natural state can be made to work easily by means of a pre-heating treatment.

- (4) The question of the plasticity of clays has been studied with considerable care, and particular attention has been paid to the methods which are commercially possible for controlling the shrinkage and other working properties of clays. This is an extremely important subject, since it opens up a new field and may make it possible to control the behavior of clays by the addition of exceedingly small amounts of certain acids, bases or salts. Some light has been thrown upon the use of the casting process for clays, by which many products can be used which hitherto have been manufactured only by means of the pressing process. Much data relating to this phase of the subject will soon be ready for publication.

- (5) An extensive series of tests is now under way concerning the development of toughness in clays, and testing methods have been developed which will render it easy to study this question with considerable exactness.

Other investigations already under way and which it is hoped can be carried on more extensively hereafter are the following: The fire-resisting qualities of burned clay products and how these may be improved, the strength of brick and hollow tile piers and how this may be increased, the frost resistance of clay products and how this may be improved.

Some General Suggestions.

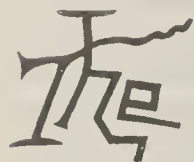
In conclusion, I beg to submit for the consideration of the members of the National Brick Manufacturers' Association a few general suggestions:

- (a) Continue to encourage investigations of clays and clay products by the national government, by each of the states, by the technical schools, and by the individuals.
- (b) Carry on the educational work to the fullest extent possible, until you know that everybody in the country realizes the importance of building houses of brick and other clay products, instead of wood.
- (c) The value and increasing prominence of clay products in the building work of the country, and the steady improvement in the quality of the clay products are such as to leave little chance of overdoing this educational work.
- (d) If the investigations and educational work are properly pushed the clay products man need neither fear nor decry his competitors.

We have been wondering a little what has gone with all our hogs and bacon that makes the prices so high and we find that, as scarce as porkers are, there was a little over \$3,000,000 worth of bacon, hams and shoulders exported during January. It wouldn't be so bad to lose our bacon this way if it wasn't for the fact that we have to pay premium prices for everything else that is good to eat. It is no time to stop and fuss at the Fates, however, because a man has to hustle these days to make the price, and maybe while we are hustling for this there will be a natural readjustment of values in the course of time.

Written for THE CLAY-WORKER.

THE TWIN CITIES AND THE NORTHWEST.



BUILDING SEASON in the Northwest is opening up nicely and promises a better than usual building season again this year, following up an unusually active season last year.

While the present view is largely prospective and to a great extent tentative, yet the early indications are strong for a good volume of building in every direction. The interest in clay products seems to be growing, and there seems to be a better inquiry than was the case a year ago. The wave of concrete enthusiasm or fad is slowly passing away, and as it passes the old reliable clay goods will come into their own again. The reason that concrete has been able to get such a hold has been due largely to the propaganda which has been maintained by the cement manufacturers, together with other interested parties. It is well enough to go after the man who is going to build, but a wider publicity of the worth of brick should be given, since there is a public opinion to be brought in aid or against the time-tried worth of the clay products.

If the spring season opens up early, as it seems possible that it may do, there will be a very active rush on new work, and clay construction, in whole or in part, will have a greater share in it than has been the case heretofore. Records of building permits are running heavier than a year ago in the early part of the year, and the present season is more severe than was last year. There is more brick work in view in both small and large structures—more brick veneer work for dwellings, more fancy chimney work, with brick mantels, and other clay construction.

The recent suggestion of James G. Houghton, building inspector of Minneapolis, to the Northwestern Clay Association, on behalf of a better standard or in fact some standard of brick specification, is the beginning of a campaign for better building material standards for Minneapolis, which will doubtless spread through the Northwest. Inasmuch as the country brick yards sell a large amount of brick in Minneapolis, if they conform to the proposed Minneapolis specification, it is more than probable that the same requirement will be taken up for the other territory, and other cities will do likewise. The Northwestern Clay Association is on record in favor of having a standard specification for common brick, both as to size and strength in crushing test and otherwise, and will use its influence in favor of the proposed improvement of standard. Other cities will undoubtedly follow suit as to the requirement, and the action will have a generally good effect upon the standards and also upon the standing in the eyes of the public, since the agitation will serve to bring the matter to public attention.

The Heron Lake Brick and Tile Company, of Heron Lake, Minn., is completing expansions and extensions to its plant to provide for the demand for hollow brick and building tile and also for clay drain tile. They have extended the capacity of their dryer, which utilizes the waste heat, by adding several down-draft kilns of 30-foot size.

The American Clay Products Manufacturing Company, of St. Paul, whose plant was recently burned out in the Midway district, has arranged to rebuild in Stillwater, Minn., eighteen miles east of St. Paul. The new plant will be ready for operation during March.

The last week in January saw a shipment of brick from Princeton, Minn., aggregating 1,500,000.

The Menomonie Hydraulic Press Brick Company, of Minneapolis, has dropped the word "Menomonie" from its title to conform to the title used by the other houses of the company, and has moved the Minneapolis office from No. 10 N. Third street, where it has been for many years, to the first and second floors of the annex to the Security Bank Building,

where there will be much more space available. The first floor is to be devoted to an elaborate display room, showing the different materials which they handle. The room will be quite exceptional in the variety and extent of the display.

The Twin City Brick Company, of St. Paul, has made a most generous offer to the city to co-operate for the establishment of a boulevard along the river. The company asks that the city adjust its proposed condemnation proceedings in such a way as to give the company an opportunity to use up some valuable clay beds which are owned along the route of the proposed boulevard.

The various architectural clubs of the Twin Cities are quite active and are holding competitions on different subjects. It would be a good plan for brick and clay associations to offer cash prizes for attractive sketches for brick residences or brick veneered work as a means of getting these budding young architects to take a closer and deeper interest in the use of brick construction. The attractive designs could be reproduced in form suitable for display in the offices of building material dealers and firms to good advantage. Sometimes such a prize could be combined with some other offer. The Minnesota State Art Society offers \$100 for the best architectural design. If a supplemental offer of another prize were made, so that a single entry might gain this prize and another, if it were for a brick structure, the benefit would still be greater, both to the contestants and also to the brick interests.

Philip Riedele has sold a controlling interest in the brick yards of Casper & Riedele, at Chaska, Minn., to Klein Bros., who already have several yards at Chaska. This gives them a total of three different plants there, with a combined capacity of 40,000 brick per day.

The county commissioners of Hennepin county, of which Minneapolis is the county seat, will have a number of sections of competitive pavement laid on country roads to test its endurance against heavy traffic and automobile use. The sections will be in distances of 100 feet. It is not known whether any brick concerns will enter the competition or not.

Pike & Cook, of Minneapolis, received the general contract for the erection of a four-story brick store and office building for the S. T. McKnight Realty Company, to be located at First avenue south and Eighth street. It will be of brick, tile and steel construction, and will cost about \$70,000. William M. Kenyon, of Minneapolis, is the architect.

J. K. Ogden, of Minneapolis, has had plans prepared for a modern six-story apartment building, to be erected at Twelfth street and Mary place. It will be fireproof construction, brick and tile exterior walls, 45x108 feet in size.

Downs & Eads, architects, Minneapolis, have prepared plans for a brick addition to the church of the North Methodist Episcopal Society, of Minneapolis, to cost about \$15,000.

The Golden Rule Company, of St. Paul, has had plans prepared for a four-story addition to its department store building, on the Robert and Eighth streets sides. The addition is to be 100x127 feet, of pressed brick, cut stone, terra cotta and other materials.

J. H. Nickel, of St. Paul, was awarded the general contract for the erection of a modern eight-story fireproof building for the Manhattan Investment Company. It will be steel skeleton, brick and terra cotta walls. Cost, \$100,000.

Dr. George G. Eitel, of Minneapolis, has had plans prepared for an elaborate hospital building. It will be five stories and basement, 51x127 feet in size, brick walls. Cost, \$100,000.

C. H. Miles, of the Miles Theater, Minneapolis, has had plans drawn for an office addition to the theater building on Seventh street near Nicollet avenue. It will be of buff pressed brick with terra cotta front to match the theater, three stories, 60x133 feet in size.

Edwin H. Hewitt, architect, Minneapolis, is completing

the working plans for the handsome new brick building which is to be erected by Hennepin Avenue Methodist Episcopal congregation on the site of the present structure at Hennepin avenue and Tenth street, Minneapolis. The new building will cost in the neighborhood of \$250,000.

E. O. Mead, of Minneapolis, will erect a brick apartment building at Franklin and Bryant avenues, Minneapolis, to be 100x160 feet in size, three stories high, modern throughout, costing \$100,000.

Cameron & Co., of St. Paul, received the general contract for the erection of a six-story hotel building at Wabasha and Exchange streets, St. Paul, with enameled terra cotta exterior walls. Cost, \$120,000.

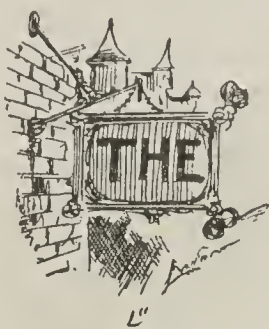
T. WIN.

HELP YOUR EDITOR HELP YOU.

If anything hampers the trade paper more than other things, it is what might be termed neglect on the part of those subscribing for and reading the paper. Many things are happening every day which the editor would be delighted

Written for THE CLAY-WORKER.

BRICKMAKING IN COSTA RICA.



CLAY-WORKER'S readers, I am sure, will peruse with interest an article descriptive of the way they make bricks down in Costa Rica. For this reason, all into which the writer could pry for their benefit is here given. But as I was hampered by not being able to speak the Spanish language, I therefore could get only so much, and this was

done through an interpreter.

It was in San Jose, a city of about 28,000 population, that we sought the brickmaking method and the possibilities there for an up-to-date brick plant location.

The Hipolito-Tournon Brick Company, a Spanish-French concern, operates a plant just on the outskirts of the city of San Jose, and is the largest in the republic; in fact, there are but few. This company has been in business about twenty years,



The Hipolito-Tournon Brick Company's Clay Bank, and Wooden Car in Which the Clay is Taken to the Plant.

to hear about and publish in proper form, and many a man who would be perfectly willing to help his editor out to that extent simply neglects or forgets to inform him of the matter, or thinks it is not of sufficient importance, or, for some one of a dozen other reasons, does not render this help. If the trade would but stop and consider that it is not merely a matter of personally assisting the editor, but benefiting the trade as a whole, as well as every man individually, he might get from this ideas that would lead to more diligent attention to these things. An editor, no matter how brilliant he is, can only do a certain amount toward making his trade paper; that is, he can weave the material together and dress it up and gather a certain amount of it from the trade, but to get material out of which to make his paper, that is, abundant enough to produce the best results, he requires the hearty co-operation of different members of the trade, no matter whether they are simply readers or advertisers, large or small. Every man has his various interests, and helps himself as well as the editor by active co-operation when occasion offers.

during which time the plant has undergone but few enlargement changes. There is a good deposit of a dark colored plastic clay near the plant which becomes a light red color on burning. The preliminary step in process of gathering the raw material is done by one man, who stands upon the top of the clay embankment, using a long iron bar to loosen the clay, which easily falls below.

Standing below in the clay pit are men who load the loose clay into a wooden car, which when loaded is pushed by them to the plant and dumped into a bin. Just here I will state that they get a supply of clay from the bank every other day which is used up the succeeding day.

This bin to which I referred is elevated on a level with the opening of a cylindrical disintegrator which stands upright and resembles an upright steam boiler, such as is used to operate a merry-go-round. This machine is operated by water power, the water coming from a distance upon a big wheel. The wheel and conduit may be seen in one of the accompanying illustrations. This is practically all the ma-

chinery connected with the plant. The clay is taken from the bin by men with shovels and thrown into the disintegrator. At the base of this is a square opening through which the mud oozes into an inclined wooden trough. At this trough is a boy with a bucket of water and a tin cup. As the mud oozes into the trough in one unbroken mass the boy dashes a cup of water into the trough to keep it damp and the clay also in handling condition. After this operation he seizes a short iron rod and uses it in cutting the mass of clay as it comes from the disintegrator into about four pieces, each one and one-half feet long. These are then slid down to the end of the trough where men load it on a car and then push it to tables under a shed. It is here placed in piles alongside of the various tables and covered with canvas.

Now, at these tables are men with the old-fashioned wooden mold, and by the side of each is a bucket of water. They take these chunks of clay, place them upon the tables and cut each into about four pieces. These pieces, thus cut, as a whole will make about seven green bricks. The wooden mold is then seized, is first wet with water from the bucket, then laid upon the table, a piece of clay taken, raised high about the man's head, then with all the unspent energy, it is slammed into the shape. This is then smoothed off with a short iron rod, the shape raised slightly and the green brick pressed out by one hand into the other and laid upon a short board. This continuous mud slamming causes the men to resemble a spotted circus man. Don't know how they save their eyes.

When four of the green bricks have been placed upon the board, a boy takes them away to an open air drying rack. Here, with two hand paddles, he lifts them onto the rack. By the use of the paddles the air spaces are always uniform and the green brick is not easily broken in handling.

When the green bricks have dried they are placed upon wheelbarrows and wheeled to the kilns, of which there are two. These have a capacity of 93,000 bricks each, and are of the up-draft square top type. They have the iron semi-circle shaped hinged swinging doors, through which wood is thrown. Now and then a boy came from the shed with something in a wheelbarrow which he said was coffee. To me it had the appearance of flaked rice, only more of a creamy color. This he shoveled on top of the wood fire. All the fire flues are built with grates, which are about ten inches from the ground.

The product turned out at this plant consists of common building bricks; hollow blocks of four sections, which are used as a mixer with the builders; a semi-pipe shaped roofing tile and a small block which is used a little for sidewalk pavement. All of these are made on wood shapes.

None of the streets are paved with bricks or any other substantial beautifying material. Macadam and cobblestone have been used throughout the city. The reason for this is that stone is cheap and that they have found no method of brickmaking that will stay the absorption of water and thus prevent crumbling. Now, upon this subject I inferred that there is a financial reward awaiting him who would enter the city with a knowledge of this class of brickmaking, with

push to induce the government to use the same in the streets.

The plant is situated in a section somewhat away from the railroad lines and hence any shipments out of the city have to be hauled to the cars by the ox cart. Such facilities are not the best, yet I was told that they shipped to most places where railroad lines touch, of which there are two entering the city.

The brick business is reported good and the demand is growing. With the swiftly passing use of the adobe bricks and the spirit of modern house building, which is now in vogue there, the brick business will soon be on a boom. All the houses built heretofore were one story, but are giving place to structures that tower towards the sky.

Labor is cheap; the men usually work by the day, for



General View of the Brick Plant Showing Dry and Kiln Sheds.



Conduit and Water Wheel Which Furnishes the Power for Operating the Plant.

which they receive about 70 cents (United States currency). They work from 6 to 6 o'clock, stopping about 9 o'clock a. m. for coffee and 12 o'clock m. for breakfast. Wood for fuel purposes is not so cheap.

A large railroad depot is now in its incipient stage of building; this will be all bricks, except the base.

As the company is composed of Spanish and French gentlemen, what little machinery used comes from France, where the members of the brick company live most of the time. The plant is in charge of Don Pablo Buron, a Costa Rican, who is a member of the firm.

The climate around San Jose is salubrious, being tempered by a little rainy season, which does not interfere with

brickmaking throughout the year. Living is cheap, and to me it seems that an up-to-date brick plant there would thrive.

Written for THE CLAY-WORKER.

THE OUTLOOK FOR CLAY INDUSTRIES IN OKLAHOMA.

IN THE DEVELOPMENT of any center of the clay industry there are at least four essential factors to be noted. These are: First, the supply of the raw material; second, fuel; third, transportation facilities, and, fourth, markets. It is the purpose of this article to show that Oklahoma possesses advantages in all of these essential features which should make it one of the great centers of the clayworking industries.



Stock Yard of Drain Tile Plant at Port Zimon, Costa Rica



Typical Street Scene in San Jose, Costa Rica, Showing Method of Selling Wood.

high refractoriness, but as there are several other veins to be tested such material may yet be found.

Farther west the shales become red on account of the high percentage of iron they contain. These shales have proved valuable, so far, only for common and building brick. The supply for this purpose is inexhaustible, as these red shales occur throughout the western half of Oklahoma.

In the southern portion of the state the shales occur usually in thinner beds than in the eastern portion, but there are many localities with beds of workable thickness, well situated with regard to fuel and transportation.

In regard to the second essential factor, the fuel, it is only necessary to state that the northeastern portion, where the Carboniferous shales occur in greatest abundance, is in the midst of the world's greatest oil and gas field. The gas

can be obtained for manufacturing purposes at a few cents per thousand feet. The field is being constantly enlarged and shows no signs of failure of supply. There are also smaller fields in the southwestern and south central parts of the state.

Just south of the oil and gas belt lie the coal fields, which will supply an abundance of cheap fuel for years to come. The western portion is not so fortunate in this respect, but in no part would the cost of fuel be prohibitive.

All parts of Oklahoma are well supplied with railroads, the eastern portion, where the better shales and the fuel are most plentiful, being especially so.

The main lines of the M., K. & T. and the Frisco systems traverse this portion of the state from north to south and each system has many branches or cross lines which connect the two systems at several points. The Iron Mountain has a line from St. Louis to Muskogee, and the Midland Valley crosses the field from northwest to southeast. The Fort Smith & Western and the Rock Island give east and west connections through the coal fields. Through the "red beds" region the Santa Fe, Rock Island, Frisco and Orient give excellent connections in all directions.

In regard to markets it should be noted that the rapid growth of such cities as Oklahoma City, Muskogee, McAlester, Ardmore, Durant and many others creates a demand, which is much larger than the supply. Several plants have been installed in the state, but the greater portion of the clay products used are still imported from the older states.

No one who has investigated the conditions doubts that the era of permanent building in the state is just beginning and that the demand for all sorts of clay products will steadily increase.

Although at present no deposits of high grade fire or pottery clay are known, the tests made have only covered a small portion of the area and it is probable that such deposits will be found.

Even if these materials should not be found in the state, the abundance of shales suitable for building and paving brick, drain tile, sewer pipe, etc., combined with the advantages in the way of fuel, transportation and markets should make Oklahoma one of the great centers of the clay industry.

In the matter of raw material, Oklahoma is certainly as well supplied as any other state. The eastern portion of the state, except the extreme southern part, is underlaid by the sandstones and shales of the carboniferous system. These shales are of the same age as those of Ohio and Pennsylvania, and some of them are the southern continuation of the beds that are worked at Cherryvale and Coffeyville, Kansas, with excellent results. The beds are often many feet in thickness and easily accessible. The few tests that have been made show that practically all these shales are suitable for either building, or front brick, or paving block. Fire clays should occur in connection with the coal. One vein of this has been tested and does not prove to have



Written for THE CLAY-WORKER.

CONVEYING AND DRYING.

(Fourth Paper.)

A PATENTED system of handling bricks and drying, piles the bricks on racks at the take-off belt. A traveling crane carries a unit of 1,500 or more bricks, which are placed on I beams on top of burning and cooling up-draft kilns. When dry the bricks are moved by the crane to a setting kiln and lowered into place in the kiln. The system is adapted to common bricks burned in open-top continuous or up-draft kilns. The setting must be simple, because a complicated and varied setting would give trouble in stacking up at the belt. The method is very economical in handling, drying and setting.

The drying is done by waste heat from cooling or burning kilns without any equipment except I beams upon which to rest the stacks of bricks. Successful operation of the system requires enough kilns to insure a continued operation in order that there may be always a cooling kiln, otherwise some kind of a dryer in connection with the system becomes necessary.

Another system of conveying and drying which is being tried out does away with all take-offs. The bricks are conveyed to kiln on practically the take-off belt, and taken off and set at the same time. The kiln floor is covered to a height of six or eight courses, then hot air is forced through the bricks to dry them. When dry a second series of six or eight courses is placed on the first and dried as before. When the kiln is full and dry the burning is done as usual.

This eliminates the take-offs and tossers. The setters take off and set the bricks and, since the setting is never more than eight courses, no tossers are needed.

For this system the clay must be stiff enough to stand up six or eight courses and must be a very safe drying clay. The system is adapted to common brick by the stiff mud process. To use it for repressed bricks would involve the usual force at the machine to feed the represses and take the bricks therefrom. The dry house labor would be eliminated except one man and there would be no tossers. The stress under which the setters must work to keep the belt clear, which is an advantage in common bricks where quantity counts, would be disastrous to high grade face bricks where care in setting is of first importance.

A modification of the crane system of handling uses an overhead trolley handling units of about 100 brick.

In the dry press process these brick are set at the press to fit the place they are to occupy in the kiln, and carried to the kiln and set in place by the trolley. This eliminates the tossers and most of the setting gang, but to offset it greater care must be taken at the press. In stiff mud the units are placed on cars and dried, then taken from the cars by the

trolley traveler to the kiln and set as before.

These several patented systems have economical advantages in special cases, but the royalty must be low in order to make the saving to the manufacturer worth while.

For instance, contract figures from one factory making common and face bricks are as follows:

Take offs	12 cts. per M
Transfer men	12 cts. per M
Setters	15 cts. per M
Tossers	13 cts. per M
Total	52 cts. per M

There is a possible saving of 10 cts. to 35 cts. in the labor of handling the bricks from machine to kiln, and to make the business profitable the royalty must be kept within these figures.

These patented systems, however, make use of other economies in the process that add greatly to the net saving.

For instance, the use of a continuous kiln may save from 40 cts. to \$1 per thousand in fuel, and something in labor.

The full utilization of waste heat on the plant may mean 25 cts. to 40 cts. per thousand, and this the patented system uses and counts it as part of the process.

What does it cost to dry bricks artificially? R. H. Minton, in "Transactions of the American Ceramic Society," estimates about 1-8 ton of coal per thousand bricks weighing 9 pounds each and containing 22½ per cent. of moisture.

With coal at \$2 per ton, this would mean 25 cts. per thousand, or 75 cts., which is very high. We have figures of ⅓ of a ton of coal per thousand. The work, however, was being done in a crude radiated heat dryer.

A prominent manufacturer of a modern direct fire radiated heat dryer guaranteed a fuel cost not to exceed 35 cts. per thousand.

A brick manufacturer using a steam dryer said: "It costs scarcely anything to dry the bricks. We use exhaust steam in the day time and at night we have to keep up steam anyhow."

Let us figure a little.

In boiler practice one pound of coal will convert nine or ten pounds of water into steam, and if none of the heat is lost the heat in the steam should be sufficient to evaporate another nine or ten pounds of water, but in the application we can not recover over 50 per cent. of the heat in the steam, which will evaporate five pounds of water. If the bricks contain two pounds of water each, one pound of coal through the medium of steam will dry two and one-half bricks. If half of the drying is done by exhaust steam we can count five dry bricks to each pound of coal expended, which would be 200 pounds of coal per thousand bricks dried, or one-tenth of a ton, or 20 cts.

It may be said that we can dry bricks without any heat, so long as the atmosphere is not fully saturated, therefore

our figures are absurd. If, however, the air is fully saturated, then all the above estimated fuel will be required to maintain the atmosphere above the dew point while the moisture is being removed from the bricks, and it may be safely said that in many steam dryers the degree of saturation of the air leaving the dryer is not greater than that entering. The higher temperature at the expense of fuel raises the dew point of the air and enables it to remove the moisture from the ware.

How much of the heat in the fuel is available in the steam for heating purposes? A pound of good coal may have 14,000 heat units and a pound of steam in round numbers 1,100 heat units, or 11,000 heat units in ten pounds of steam, a loss of 3,000 heat units, or over 20 per cent.

The distribution of this steam in the dryer pipes, the loss in imperfect saturation of the heated air, radiation losses, etc., will very materially reduce the value received from the fuel, and we do not hesitate to say the drying cost per thousand soft or stiff mud bricks using \$2 coal will exceed 30 cts., and on many yards 50 cts. per thousand. Economy would result if manufacturers would accurately determine the cost of drying.

If waste heat is not used, it is safe to say the most economical fuel consumption in drying will be found in the direct fired radiated heat dryer. We must except, however, dryers in which the products of combustion enter into the drying chambers, which are only applicable where scumming is not objectionable. (It may also be noted that the sulphur in the combustion gases has a disastrous effect on the dryer car equipment.) Indirect radiation coils and blast fan is the most economical method of applying steam heat, and direct radiation from steam pipes in the dryer with natural draft will show the least economy.

In view of this, the open air drying system, which we are prone to condemn as antiquated and expensive, may well be considered as economical for a small yard favorably situated.

It probably takes more labor, but if the total labor from machine into kilns is not more than 50 cts. per thousand the additional labor on an open air drying yard would be considerably less than the cost of fuel for drying.

For small yards favorably situated, open air drying with the addition of an exhaust steam heated floor for winter and wet weather operation will be quite economical in operation and of low cost in the first installation. Capacity, however, is the feature of prime importance, and whatever saving there may be in overhead charges in consequence of increased output may be expended in getting the capacity without loss.

"Make bricks" should be the slogan on every yard.

There is sufficient waste heat on every yard to dry the ware, but not with any wide margin of excess. If the plant is to be equipped with the expensive installation to use the waste heat every effort should be made to conserve the waste heat.

There should be little or no occasion to enter on the book any fuel cost item for drying.

Tile and hollow ware manufacturers are beginning to use tunnel dryers supplemented by dry floors over the tunnels and using the radiated heat from the tunnels.

One paving brick manufacturer is increasing the capacity of the plant by making the tunnel dryer two stories, and the same was done by one common brick manufacturer.

In both instances the idea was adopted because of space, and it will be interesting to see the outcome of the experiment, which we believe will show a balance on the right side of the ledger.

The experiment of tunnel dryers has been tried in sewer pipe manufacture without success, simply because sewer pipe has to be rolled and finished when in the right condition, which could not be determined in the tunnel dryer. In fire brick plants the idea of tunnel drying has been advanced,

but fire brick must be repressed when partially dry, and the drying could not be regulated. However, the use of a tunnel for the repressed bricks is perfectly practicable and is in use, and the roof of the tunnel can be used as a dry floor, which was done at one plant visited by us. The use of a direct fired or steam heated dry floor has been the custom in fire brick plants, but tunnel dryers are being used to some extent and we believe their use can be extended with profit.

The most modern fire brick plants have an upper floor for special work and slow drying ware. The partially saturated air from the lower main dry floor is especially suited to drying difficult pieces. It saves the cost of an unnecessarily large and expensive hot floor, and it is not necessary to run any part of this floor cold in order to protect the difficult ware.

Much can be said in favor of a two or three story shop for several lines of ware.

Whatever type of dryer is used, it will be economy to keep it in proper condition to do the work. Especially waste heat tunnels require proper construction and careful attention. We examined one waste heat duct from kilns to tunnels and had to wear rubber boots to get through the water in it, and the worst of it was that it could not be drained except by pumping.

On two yards we found the cross head duct to the tunnels nearly filled with broken bricks that had fallen from the cars. Doors are often found cracked, broken and swinging loose, allowing the valuable heat to escape into the air without coming in contact with the bricks. A roomy tunnel is not the best for drying. Where there is a lot of space over and on each side of the bricks the hot air follows these spaces instead of circulating among the cars of bricks, and the latter get only the eddies of the circulation.

There should be ample volume of air as well as heat. One prominent manufacturer says, "not less than 25 cubic yards per thousand bricks and 40 cubic yards would be better." We agree with him as regards the 40 cubic yards. Not only should there be such volume of hot air, but it must come in contact with the ware to be dried.

Before closing the subject of dryers we wish to call attention to the labor. We have found as a rule more men employed about the dryer than should be required. Two men should handle 30,000 bricks on cars in and out of the tunnel dryer, and four men should handle up to 60,000. We mean taking the bricks from the dryer, delivering them to the kilns and returning the empties to the machine.

More labor is often required because of bad yard arrangement, but oftentimes because of a faulty dryer construction.

There should be no occasion for a man to enter the hot end of a tunnel dryer, which is often made the excuse for more help.

The tunnels should have sufficient fall, if of the gravity type, to insure the cars running down. The cars should be automatically coupled together, and at the lower end the last car should be automatically uncoupled and allowed to run out while the remaining cars are automatically blocked.

Many dryers have not sufficient fall, and such dryers should be equipped with an automatic power pulling device which can be easily done.

(To be continued.)

Deeds have been filed transferring to the Stiles & Reynolds Brick Company the brick manufacturing property formerly owned by the W. L. Davis Brick Company and located in the towns of New Britain, Berlin and Newington, Conn. The Stiles & Reynolds Company has just been incorporated with \$75,000 capital stock to take over the plant. Enlargements will be made by which the annual capacity of the plant will be doubled by increasing it from 6,000,000 bricks to 12,000,000. Frank L. Stiles, of North Haven, who is the head of the new concern, now operates large brick plants in North Haven and in Taunton, Mass.



DRAINAGE NEEDED.

THE BUREAU of Soils of the United States Department of Agriculture has issued a bulletin report on the Volusia soils. This type of soils covers an estimated extent of 10,000,000 acres in southern New York, northern Pennsylvania and northeastern Ohio. These soils are light colored and where the soils are well-nigh exhausted the lighter color prevails. The bulletin claims that there is a lack of underdrainage, a deficiency of organic matter, poor herbage and a general lifeless appearance. The prices of farms in this area have been on the decline for twenty-five years, and in some localities the farms have been abandoned because of their unprofitableness for agricultural uses. The soil surveys and investigations of this region have been made with a view of improving their condition.

The greatest wants encountered in the treatment of Vo-

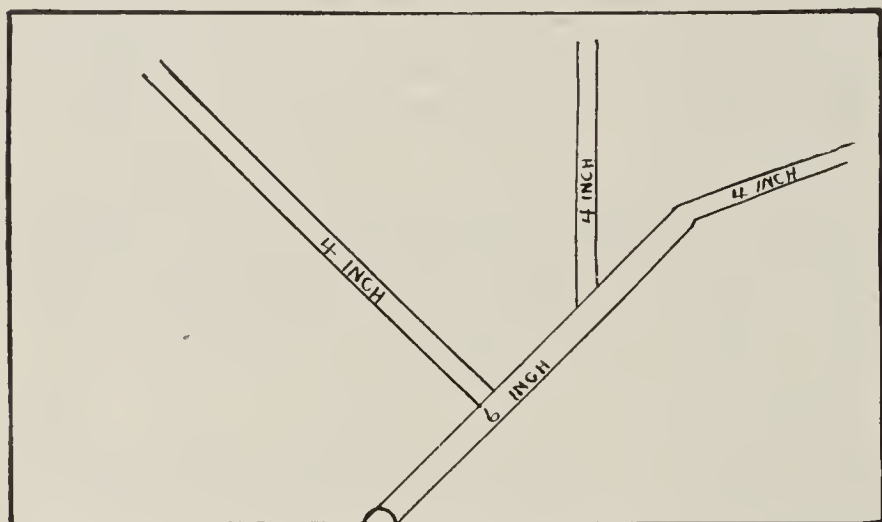


Fig. 1. Temporary Drainage.

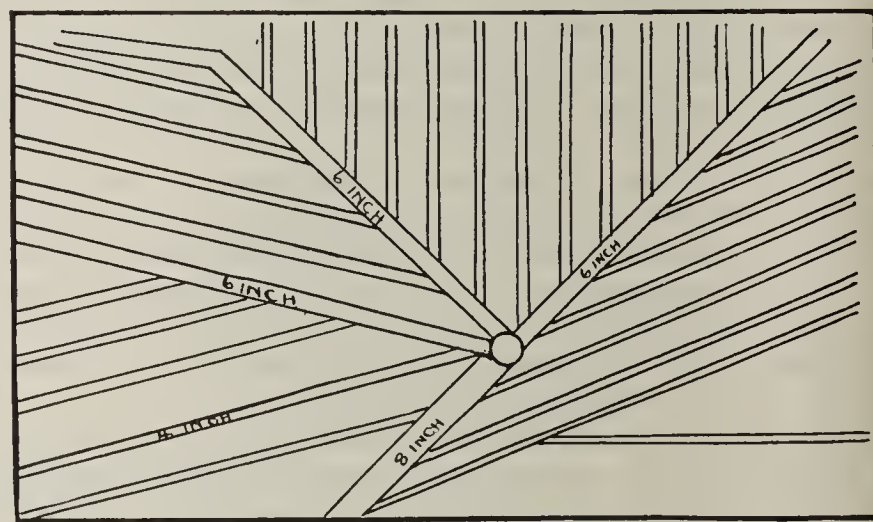


Fig. 2. Thorough Drainage.

lusia soils is found to be the lack of drainage, the poor physical condition resulting therefrom and the loss of organic matter. The proper management of these soils requires tile drainage; the plowing or stirring of the soil or subsoil when sufficiently dry to prevent puddling; the addition of organic matter in the form of stable manure or green crops plowed under, and the use of lime on the soil before seeding to grass, especially clover. The above treatment of the soils referred to is probably the best that can be applied at this time, but the fact is that they have been neglected too long. How much better it would have been for the soils and for those who have been trying to make a living in the working of them for so many years.

But what of the condition of much of the soil in cultivation in what is known as the great corn belt, and in some states bordering the corn belt? Indiana has many farms that need a similar management as advised in the bulletin referred to, and the same can be said of Illinois, Iowa and other states. Drainage, tile drainage, is needed first as the base to build upon for best soil conditions and the future agricultural prosperity of a wide scope of country.

The question may be asked, What of the wide extent of drainage that has been done the past forty years? We answer that the soil conditions have been much improved; thousands of acres of wet and swampy lands have been

brought into a state of profitable cultivation. But the fact remains that much of what has been done has been of a temporary character. Swamps have been drained, low wet places in the field have been "tiled out," so that the entire field could be plowed without skipping wet places. So far so good. But what of the higher ground that has not been drained? Many have thought and said it does not need drainage. Besides, much of the work in drainage has been poorly done. Many of the drains are not deep enough, have but little, if any, system; the tile have been poorly laid and are not large enough to secure the best results; have not been laid true to grade. The men who did the work had no definite knowledge as to what might be accomplished by thorough work in drainage.

On the higher land the soil conditions are getting worse every year on many farms. The soil fertility is slipping away into lower ground or into the rivulets and streams with each recurring heavy rainfall; the organic matter goes with it, the soil becomes more compact and more difficult to pulverize, and the crop yields less remunerative. All this and more because of the need of sufficient underdrainage. Is it at all probable that farm lands in the "Great Corn Belt" will suffer such a depletion of fertility, of organic matter, as to run down in value, much the same as the Volusia soils of southern New York, eastern Ohio and northern Pennsylvania? If not, why not? The same causes are likely to produce like effects if the soil conditions do not differ widely. Within the range of the "Corn Belt" there are many fields

that are verging on like conditions of the soils in the states referred to. We refer our readers to the illustrations outlining temporary and thorough work in drainage.

The figure illustrating temporary work covers much of the work done in the wide extent of tile drainage. A has a field of twenty acres with draws as indicated by lines of drains constructed. The drains serve to carry the excess of water from the draws or depressions and is satisfactory, so far as it goes, but does not go far enough; the higher land is not benefited in the least. The field as a whole is bettered because it may be plowed and cultivated without hindrance from wet streaks of soil, and the drains relieving the soil of the excess of water along the lines of the drains by so much increases the crop yield, which is very satisfactory to the husbandman. There is, however, no added gain in any particular to the higher land, except that the breaking of the land as a whole may go on without any hindrance.

The same field, if drained as illustrated in Fig. 2, is altogether a different proposition. The latter outlines thorough work in tile drainage. At a glance it is apparent that the benefits of temporary drainage are secured and added benefits of more importance, in that the higher land is uniformly benefited, the underdrainage affecting all the land in the field alike.

In the latter illustration the land midway between the

lateral or side drains is freed from any excess of water that may come to it. The soil and subsoil is made open and friable to the extent that the water falling upon it passes down through the soil and subsoil to the drains, excepting the film water that covers the particles of soil, which makes the soil moisture needed in the crop growing. Besides, any fertility that may be at or on the surface is carried down into the soil and subsoil, thus preventing the loss of fertility that would otherwise result from temporary or surface drainage.

Another important factor in thorough work is the circulation of air through the soil, so needful to plant life in making plant food available in crop growing.

The benefits resulting from thorough work in tile drainage increase from year to year for several years after the construction of the drains. The water level is lowered and the better mechanical condition of the soil along the mains and laterals is widened. Farms that were thoroughly tile drained in the forties of the last century near Geneva, N. Y., are, we are informed, giving splendid results. Think of it! through sixty or more years of cultivation and crop growing they still respond satisfactorily in the growing of maximum crops. The same is true in old England, where like thorough work has been going on for more than a century. These facts point the way to success if we only heed them.

Intelligent farmers are coming to believe more and more in the value of thorough work in drainage. Many farmers are casting about for wider holdings; some are going west, where they have to depend on irrigation to grow average crops, where they will be taxed with water rates to grow anything in the way of farm crops. Others are going to western Canada, where the weather conditions are not comfortable and market conditions are not promising. Why not enlarge our holdings by going deeper into the soil and subsoil of our present holdings and make the fertility that underlies our farms available, and grow two bushels of corn where we now only grow one bushel, or 100 bushels where we now grow thirty, or even forty bushels. The late corn exposition at Omaha ought to be an eye-opener to many farmers who are dissatisfied with their present holdings as to what can be done by underdraining their land, and the selection of good seed and the better, up-to-date tillage.

Clore, Overstreet and others who have carried off the big premiums grow their corn on tile-drained land. There are other farmers in this state (Indiana) that are growing 100 bushels or more to the acre, and it is also true that they grow these maximum crops on tile-drained land.

The writer has been in touch with the work of drainage for forty or more years. We made the mistake of doing temporary work at first, but we have been willing to adopt a better practice, have kept our eyes open to better teaching, and we are convinced that the majority of farms in this and other states are not well enough drained; in fact, are poorly drained, and the owners need to do the work over and do it better, so as to reap the resulting benefits, so as to grow the 100 bushels of corn and other crops in proportion.

This going west or to Canada is cowardly. Better stick to the job of doing better work in drainage and tillage, and the rest will come easy. Set a higher standard in doing what we do, then go for it, and we will be proud of our achievements.

WELL SAID, WELL DONE.

Dr. Townshend, in a lecture before the Ohio State Board of Agriculture, in 1879, said: "I have often harvested over thirty bushels of wheat to the acre on nearly flat clay soils by rounding the lands and opening the furrows. If any one objects to these furrows as a nuisance, I answer that the greatest of all nuisances is a poor crop." He further said: "One year I underdrained a part of a field at a cost of \$22.50

per acre, and at harvest it yielded twenty bushels more per acre than the undrained part of the field, and as the crop sold for \$1.25 per bushel, the extra yield paid all the expense of drainage and left me a little in pocket."

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE general business situation in connection with the clayworking industries in the Pacific Northwest is considered good. The brickmakers are getting together again, and are endeavoring to raise the prices somewhat. Quotations were \$7.50 in Seattle and \$8 in Tacoma for the greater part of the month. The building line is a great deal retarded this month on account of the extreme bad weather which we had all through the month. The paving brick situation is quite encouraging, and brick for paving are well sold ahead. Bellingham will pave Chestnut street with brick and the contract amounts to \$40,000. The center part of the business district of Ellensburg will be paved at once with brick, and the city council has passed favorably on a petition to that effect. The main street of Kent will also be paved with vitrified brick. With the constant increased demand for paving brick, it is only natural that the manufacturing end of this clayworking branch be given more attention than in former days. New projects are contemplated in several parts of the Pacific Northwest. The Hebe Construction Company will erect a large paving brick plant this spring in Portland and enter the local field, which is now entirely in the hands of the wood and asphalt people. When the new dam is placed in the Baker river, above Baker, Wash., and the power will be available for manufacturing purposes, the large, inexhaustible deposits of shale, which are found on both sides of the river, will be turned into vitrified brick and tile. These clays have been repeatedly tested and found to be well adapted for vitrified brick and sewer pipe purposes. Negotiations are already pending with two large Eastern manufacturers of these materials with a view of erecting plants this coming spring.

The sewer pipe situation has not materially improved this month. The clay manufacturers are still trying to get the cement sewer pipe from the market, and Tacoma has been chosen as the battleground; they are now nearly giving sewer pipe away there. The cement people are talking of erecting a factory in Bellingham this spring. Everett will boast also before long of having a small sewer pipe and drain tile plant. Julius Gobeaux, who is an expert clay manufacturer, is testing the various clays found around Everett and Whinby Island. Mr. Gobeaux will erect a plant for the manufacturing of sewer pipe, drain tile, floor and roofing tile in case his tests prove satisfactory.

Andrew Johnson was killed in the clay mines of the Denny-Renton Clay Company's plant at Taylor early in the month. Johnson was a good hard-working miner and has been in the employ of the company for several years.

The Newberg Brick and Tile Company, of Newberg, Ore., has increased its capital stock to \$100,000 and declared a dividend of 10 per cent. on last year's business. Mr. Charles H. Lucas, of Portland, was elected president and C. E. Fuller, of Newberg, manager. It was decided to add at once eight tunnels to their dryer now in use. They will build also three down-draft kilns of 100,000 brick capacity and install some new machinery. The greater part of the company's output is sold in Portland.

The Salem Tile Company, of Salem, Ore., will enlarge its factory and double the present capacity. On account of the large demand for brick in and around Salem the company has sold several kilns ahead for spring delivery.

Mr. Frank Sweeney, with Andrew Laidlaw and Fred C. Laird as partners, have incorporated the Clay Products Com-

pany, of Spokane, with a capitalization of \$100,000. The plans of the company have not been definitely settled.

The W. G. Hunt Brick Company, of Sand Point, Idaho, has sold a controlling interest in their company to the Washington Brick, Lime and Manufacturing Company, of Spokane. The brick yard will at once be enlarged and some \$20,000 will be spent on improvements.

SIWASH.

Written for THE CLAY-WORKER.

ST. LOUIS BRICK AND BUILDING NEWS.



PLEASANT AND springlike weather of the past few days has started up operations at the various brick plants in this city. For the past couple of months the weather has been unusually severe for this climate. In fact, the winter has been one of the coldest winters, with more snow than for the past twenty-five years. It was so cold that many of the plants when they closed down for repairs about the first of the year did not resume operations until a few weeks ago, and some did not start up until within the past few days. From now on the yards will be kept busy making their deliveries, and some will have to work pretty steady to fill the orders that have been sold during the past few weeks of enforced idleness.

The severe weather also stopped building operations almost entirely. There was a big falling off during the month of January in the number of permits issued and in the aggregate cost of construction, and during the month of February the total estimated cost of the buildings proposed in the 557 permits issued was about \$1,230,000 against \$2,200,000 for the 655 permits issued during February, 1909. This shows a decrease of about \$970,000. Since the first of March, however, there has been quite a spurt in building operations. Quite a number of permits for private residences, apartment houses and manufacturing plants, as well as business houses, have been issued, and also permits for several important public buildings. Among the latter was a police station to cost \$40,000 and a new public school to cost \$185,000. From now on it is expected that there will be great activity in building operations unless labor troubles arise to handicap operations.

The resignation of Mr. William B. Ittner, commissioner of school buildings, son of Mr. Anthony Ittner, the well known brick manufacturer, occasioned considerable surprise. It will be a big blow to the city, as Mr. Ittner has not only saved the city a great deal of money on the construction of the many public schools that have been erected during his thirteen years' administration as commissioner, but has made the city famous throughout the world for the class of school buildings that have been erected. Mr. Ittner retires to look after his private practice, which has grown to large proportions and which pays him more than the office of commissioner. Mr. Ittner will probably be retained in an advisory capacity, however.

It is reported that the Hydraulic Press Brick Company has sold during the past winter some 37,000,000 common and 12,000,000 vitrified brick, to be delivered during the coming season. Some of the plants of the company have been in operation more or less during the cold weather, but others were closed during the most severe weather.

The Anthony Ittner Brick Company was compelled to close down on January 31 on account of cold weather and to make the usual repairs, but started up one of its yards during the first week in March and another the week following. Mr. Ittner says they have a great many brick sold for spring delivery. Orders have been coming in quite lively during the past few days.

There has been no change in prices of brick during the

last few months. Merchantable brick still sells at \$7, ordinary hard at \$7.25 and strictly hard at \$7.50.

Ben F. Ittner, Jr., the seven-year-old son of Ben F. Ittner, and grandson of Mr. Anthony Ittner, died a few days ago from grip.

An inventory of the estate of the late Louise M. Simpkins, whose husband, the late George W. Simpkins, was an officer and a large stockholder in the Hydraulic Press Brick Company, was filed in the probate court a short time ago and showed that she had, besides property, personalty to the amount of \$254,286.14. Of this amount \$218,300 is invested in stock of the Hydraulic Press Brick Company.

The Superior Press Brick Company will soon put in operation a vitrified brick plant.

The Continental Brick Company is doing a satisfactory business, and Mr. Otto Oehler, the manager, says he expects to have a nice steady trade during this season.

George Jones, secretary of the Evens-Howard Fire Brick Company, reports that they are having a normal demand for fire brick, but the call for pipe is not as great as it would be had the weather been more open. He looks for a good lively trade in all lines to begin in a short time.

Ed J. Ryan, of the American Press Brick Company, recently secured the contracts for furnishing the brick for a number of big apartment houses and expects to be kept busy supplying the brick.

It is reported here that the Adair Brick Company, at Kirksville, Mo., is contemplating making extensive improvements in the spring. It is said to be the plan of the company to install machinery for the manufacturing of paving brick as well as building brick.

B. H. Richards, Jr., treasurer of the Richards Brick Company, of Edwardsville, Ill., says they are making extensive improvements at their plant and will open new clay grounds. The principal part of the improvements will be the installation of a continuous kiln. It will have a capacity of ten times as many brick as may be burned in the kilns now used. The present output of the plant is a million and a half brick a year. The kiln will cost about \$40,000. A clay shed large enough to hold a year's supply will be constructed. A narrow gauge railroad will be built to elevate the clay. A switch will be built to connect with the McKinley belt line.

At the annual stockholders' meeting of the Vitrified and Fire Brick Company, the following directors were elected: Frank C. Pauley, James McMenamy, Jacob Buehler, John B. O'Meara, Walter H. Handley, F. A. C. McManus, Fred W. Christmann.

At a stockholders' meeting of the Calhoun Brick and Clay Company, held recently, the following directors were elected: William A. Curtis, of Norwalk, Conn.; Charles H. Thomas, of New York; Charles P. Tiley, of Belleville, Ill.; W. G. Thomas and John D. Woodruff, of St. Louis. The directors elected the following officers: President, Charles H. Thomas; vice-president, Charles E. McEwing; secretary, Charles P. Tiley; treasurer, W. G. Thomas. A. SAINT.

STARTING RIGHT IN LOUISVILLE.

Among the current news items of the past month is one to the effect that the Hoosier Brick Company, of New Albany, Ind., has been awarded the contract of furnishing the city of Louisville with 250,000 vitrified brick and blocks to be delivered between March 1 and August 1 for paving streets and alleys. This is starting right, and we hope there will be more of it, not only in Louisville, but in other cities, more giving of contracts for vitrified brick and block. Louisville has some excellent brick streets and some that are poor, because the brick was not of proper size or quality, but the good ones so far outclass the asphalt and other paved streets that it should naturally stimulate more interest in proper brick paving and lead eventually to the placing of lots of other contracts of this kind.

Written for THE CLAY-WORKER.

PERFECTED HOUSE-BUILDING.



INSURANCE authorities tell us that it requires about 300,000 new houses every year to supply our increase of population and 80,000 more to take the places of those that are destroyed by fire. Our people seem bent upon increasing rather than diminishing that destruction, that is so often accompanied by loss of life, too, for they keep on building houses of wood, inflammable fire traps, most of them.

Fireproof construction has made advances, but has been applied mostly to commercial and public structures. It is pleasing to note, however, that a beginning is being made in sensible house construction. Brick is being used more extensively than heretofore and concrete, and lately hollow tile, hollow fireproof clay tile, has also been used with signal

or model for many houses thereabout. Several prominent Washingtonians have already planned to build tile houses this year.

These tile structures can be coated externally with stucco or if wooden effects still be desired, these walls can be "shingled" with asbestos shingles. Indeed, these new asbestos shingles, everlasting and fireproof, constitute the very best covering so far devised for external walls and roofs.

It would seem that we were starting upon an era of vastly improved house building, and there is a vast field for that improvement.

A GENERAL TENDENCY TOWARD FIREPROOF HOMES.

Under the conditions affecting practically the entire population of civilized countries, it is only natural that sooner or later every device that commends itself either from an artistic or utilitarian viewpoint, every mode of construction that offers advantages, should be adapted to use in the con-



A \$10,000 Fireproof House in Process of Construction.

success. These hollow tiles have formed the basis of fireproof construction in large buildings for the last thirty years, they are the standard system of fireproof protection, but it is only within the last year or two that they have been applied to houses. In New York and Chicago and in Ohio, near the big tile factories, several of these houses have been built completely of tile, the walls, the partitions, the floors and all, and they make ideally comfortable and beautiful homes. There is no wear out to them nor repairs, they are cooler in summer and warmer in winter than any other kind of construction, no fire insurance is required and the ultimate cost is less than that of the perishable and unsatisfactory wooden house that, however, is yet so much the fashion solely because it is the usual thing.

The accompanying views are of a tile house now being built for Mr. Heister, of the firm of Milburn & Heister, architects, at Chevy Chase, Washington's beautiful suburb, a house costing but \$10,000 and which will serve as a pattern

construction or equipment of the modern residence. Among the latter is found the modern fireproof house. Only a few years since, fireproof houses, except in the case of pretentious dwellings, were practically unknown. During the present year, however, entire colonies or settlements have been planned or built up of small or moderate sized fireproof houses. A few years hence, a frame dwelling will doubtless be an exception. Of course, the desirability of building a home, of all buildings, fireproof and permanent, has long been apparent, but practical considerations have been opposed to such a course. The change that is taking place seems to be due quite as much to the development of the art of construction as to the general tendency for better buildings and more permanent materials. The specific development in the case under consideration consists largely in the adaptation of hollow terra cotta blocks for house walls, using standard forms for interior construction. This material, covered with rough cast or plaster, has been the important factor in the greater number of small fireproof dwellings erected.—The American Architect.

A LUBRICATING DIE FOR HOLLOW WARE*

BY PROF. R. T. STULL, URBANA, ILL.

THE MOST IMPORTANT member of the molding machine is the die, for this is the part that gives the shape to the bar of clay and is responsible to a greater degree than is generally recognized for the quantity and quality of the product. There are cases where imperfect understanding of dies have been the true cause of failures.

There are two general types of die, known as lubricating and non-lubricating. In the manufacture of solid ware, such as brick and paving blocks, the lubricating die is almost indispensable, while in the manufacture of hollow products, such as drain tile, sewer pipe, hollow blocks and fireproofing, the non-lubricating die seems to be the favorite.

In order to produce a smooth column, the non-lubricating or dry die requires a clay tempered much softer than is required by the lubricating die, consequently wares made from a dry die are more apt to settle out of shape and to shrink more in drying than wares made from stiffer clay coming from a properly lubricated die.

Stiffer tempered clay can be run from a sewer pipe or drain tile die than can be worked successfully in an angular die. The reason for this lies in the fact that the friction is uniformly distributed in the circular die, while in the angular one friction is excessive at the corners, hence the corners are the first to crack.

If the core of a tile or pipe die is out of center, one side of the pipe will be thicker than the other. As the pipe issues from the die it will curve toward the thinnest side if free to move. By applying back pressure and guiding the pipe, it can be made to issue straight, but nevertheless these pipe will warp in drying and burning toward the thin side.

The core being out of center restricts the flow of clay on the narrow side and increases the flow on the thicker side. If perfect lubrication could be applied to the die, both on the inside and outside of the pipe, the friction would be eliminated and the pipe issue straight instead of curved, and under proper conditions dry and burn straight.

The aim in pipe and tile manufacture is to make the walls of uniform thickness, but in hollow blocks and fireproofing, thicker outer walls and thinner partitions are quite desirable. The narrow space between the cores which form the partitions, frequently increases the friction or restricts the flow to such an extent as to cause the partitions to tear; and it is in this type of die that exterior and interior lubrication would be of great value.

In the case of pipe and hollow blocks, there is very little gained in lubricating the outside of the column alone, because this does not decrease the friction of the core. Where the outside of the column is lubricated while the core is dry the result is variability of flow of the clay. The outside layer of clay next to lubrication tends to flow with greater velocity, due to reduced friction against the die, while the tendency of the core is to hold back or retard the flow on the inside, due to friction.

The tendency of such behavior in the die is to produce a weak center, which may show cracks on the interior walls and partitions, while the outside is apparently sound. This cracking of the column can be overcome by applying external resistance to flow, that is, back pressure, which may be done by applying friction to the carrier table. But this resistance to the forward motion of the column is bad practice, because it either decreases the capacity of the machine or requires increased power; besides it causes swelling of the clay column and irregular sizes of ware.

Back pressure then tends to defeat the principal objects

of lubrication, viz., increased capacity and uniform dense ware. It is better to have a properly constructed die with proper lubrication (if such a combination is possible) so that the column is perfectly formed when it issues from the die, without the necessity of resorting to back pressure to partially heal or prevent cracks.

Water is the best lubricant that can be employed, yet it must be properly applied to get best results from it. If the exterior scales for hollow wares are lubricated, then the interior core or cores should be lubricated also.

That there are great difficulties to be encountered in producing a practical water lubricating core is evidenced by the fact that such a die is not to be found on the market at the present time. Whether such a die can be made to work successfully remains to be seen.

The following chart is designed to represent a die for hollow ware, showing a method of applying water lubrication to both exterior scales and interior cores.

The water enters at A under a pressure considerably higher than is required for proper lubrication, and can be reduced to any pressure desired by any suitable pressure regulator.

After the water passes the pressure regulator it divides into two branches at B, one of which enters the scale box,

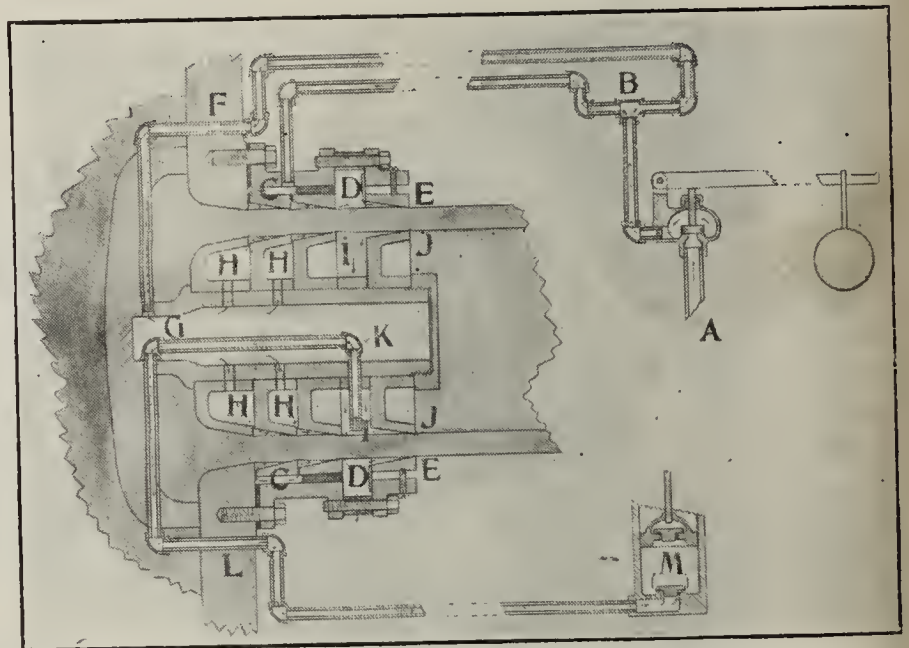


Diagram Showing Improved Method of Lubricating Die for Hollow Ware.

where the water can circulate freely around the first two scales, as at C C, and pass through between the scales, thus moistening the surface of the scales and the clay. Any excess water may pass through between the scales and the clay to the open space D D, where the pressure is relieved, and the water is "slicked" off by the scale E E and drains off at lower D.

The second branch of the water line passes through the hinge plate at F down through one arm of the spider or yoke to the hollow core, G, where the water passes through openings to the core scales, H H H H. Here it can circulate freely around the inside of the first two core scales and pass through between them and on through between the core scales, and the clay to I, where the pressure is relieved. The core scale, J J, "slicks" the water off. The water collecting at the bottom of I can be removed by any suitable suction device as M through the pipe K, which passes back through the core and out of the hinge plate at L.

The diagram is given as a suggestion for admitting water to the core or cores for lubrication and a means for removing the surplus water which would otherwise pass through with the column and soften the clay, thus rendering the column worthless. It would be necessary to do some experimenting and make some changes in such a die before it could be

*Read before the Illinois Clay Manufacturers' Ass'n, held at Champaign, Ill., January 18-19-20.

made to give practical results. Personally, I have great faith in it, and if interested in the manufacture of drain tile or hollow blocks, would not hesitate to give it a thorough trial.

The advantages in using such a die are: First, increased capacity and reduced wear on the die; second, it would permit the use of stiffer tempered clay, giving stronger ware, which would not settle out of shape in trucking from the machine to the dryer; less water to be expelled in the dryer, more rapid drying, less warping and cracking, and stronger, denser ware. Besides, larger pipe or blocks can be made on the horizontal machine than is possible with a dry die and softer clay.

Written for THE CLAY-WORKER.

TAKING CARE OF YOUR TERRITORY.



ORDINARILY THE SALE of common brick is restricted to a very limited territory because of the great factor of freight in shipping. This is not always true, but it is the general order of things, and freight on the cheap, common brick is such an important item that it naturally behooves one to strive diligently for trade in the nearby sur-

rounding territory and cover it very thoroughly before reaching out toward more distant parts. This is more imperative in connection with common brick than with any other product. Other articles where the freight is only a minor item may be shipped from town to town and rival institutions may sell into each other's towns, but with brick when things of this kind happen there is something wrong somewhere. Either some man is not properly looking after his own territory or there is an unfortunate condition in local surroundings.

What the maker of common brick should do first, logically, is to look closely after his surrounding territory. Take good care of it and strive by every fair means to hold all the trade, that nearest home first and then gradually extending until all the territory is covered that properly, by right of distribution and freight rates, belongs to his institution. That it is not always done there is plenty of evidence, and there is room for some questioning and for some wonder as to just why it is, that with freight such an important item shipments of common brick will lap beyond each other.

There was an instance which came under the writer's observation during the month where a country dealer came to town to arrange for a carload of brick. He figured that he would need quite a quantity during the building season, but he wanted one carload shipped immediately. The local brick manufacturer, who probably felt that there was a rather limited supply on hand to take care of the early spring building until he could burn some more, would only promise to ship one car promptly on the condition that at the same time the country dealer would give him an order for the full amount of what he thought would be his season's requirements. This angered the country dealer and he went about town for a day declaring he would do without brick and encourage people to build with lumber and get what few brick he needed from somewhere else, even though the freight was higher. He probably got over it afterward, though, and went back and bought, but after listening to the country dealer and to the brick man's talk it occurred to the writer that not only was this brick man in a way neglecting his home territory, but he was actually interfering with the development and use of brick by arbitrary methods.

No doubt he thought he was exercising an acute business policy and figured that after a while brick would be plentiful and that some competitor might offer them cheaper and that now was his chance to clinch the order for the whole season's requirements because the man was in urgent need of a car immediately. Yet, his argument to the country dealer was that brick would advance after a while and the safest plan was to place his order early, so that he would know what

to work forward to and have it in hand, and that there was no chance for him to lose by it.

Now, the country dealer in this case was located where his trade naturally belonged in the town where he had come. Moreover, he had always bought practically all of his brick in the town and no doubt would have continued to do so, paying the market price therefor every time he needed a car or a half dozen cars, and yet there was the brick man insisting on an arbitrary signing up of a big order for his season's needs before the dealer was positive what his season's needs would be and before the brick man would ship to the dealer a car that he was in need of at the time. This is certainly not taking proper care of one's home territory.

Then there is a peculiar angle to this kind of an attitude that also shows neglect of one's territory—that is neglect of boosting brick as a building material and using every opportunity to do so. The country dealer naturally went back home feeling disinclined to push this man's brick before builders. He handled lumber and other building material and his natural inclination would be to talk lumber, talk cement, talk anything else but brick. Let us say that by this means one house or two houses in his neighborhood that might otherwise have been built of brick were built of lumber or a combination of cement and lumber. That's not much, of course, but if there are several thousand other dealers being treated the same way and maintaining the same attitude, then the thing begins to loom up big and show some of the things that interfere with the more rapid development of the use of brick for building homes in the country.

It is neither necessary nor advisable that a brick manufacturer sacrifice his rights or his principles as a business man for the sake of encouraging a more extensive use of brick or to keep his nearby people buying from him, but really it is seldom that a man is called on to make any sacrifice of real principles in a thing of this kind. It more often happens that a man has some peculiar drastic ideas of making others do as he wants to do that he takes certain pride in and is touchy about and likes to display strength over, and all it amounts to in the end is to render him rather foolish in the eyes of an open minded observer and places him as standing in his own light in a position that will generate opposition and antagonism instead of create friendliness among his prospective customers. It matters not if at times some nearby customer wants something that seems unreasonable or has peculiar ideas that are a little out of the usual. It pays to cater to them in so far as it is practical to do so without jeopardizing the business principles or profits. A country dealer from nearby might need some training, but he doesn't relish it coming in an arbitrary manner. While, on the other hand, he will appreciate fair dealing and good treatment and humoring within reasonable limits and can be made a very strong ally in the work of promoting and extending the use of brick in building operations.

Particular stress is laid on this point in taking care of one's own territory in the matter of common brick, because right here is the point where the sharpest competition is met in cement and concrete block. Therefore, any neglect on the part of a brick man to properly cultivate his home trade, to cater to, to help it along, and encourage the use of brick is just simply making an opening for the further progress of concrete.

Cement people and concrete block people are pushing their product before the dealers and everybody else, and in every shape and form imaginable, and the natural result is that they catch not only the unwary and needy and all that, but if a dealer feels that he is not well treated by his nearby brick man he will turn a more kindly ear to the temptings of cement products of various kinds and promote them in his business. In short, that is the battleground of competition between cement products and clay products for quite a lot of the trade, and the final result depends materially on how well each brick manufacturer takes care of his home territory.

Making Sanitary Ware and Salt Glaze Brick in England.

IN compliance with my promise to the Editor of THE CLAY-WORKER, I herewith submit a detailed account of the system of the manufacture of salt-glazed sanitary ware as made in this country:

In the first place, as no doubt you are aware, these goods are made from fire clay, or what is known as a "bastard" fire clay. The goods made from pure fire clay are termed ordinary sanitary ware, and those made from bastard or inferior fire clay are termed stoneware sanitary goods. The question as to which is the best class of goods I need not enter into here at this time, as my object at the present is to show you the system by which these goods are made.

In the first place, the clay is taken from the mine and laid on the bank at a cost of about two shillings, six pence (55 cents) per ton. It is allowed to weather for any period beyond six months, the longer the time the better. The clay is now taken to the pan house to be ground and prepared to be converted into pipes and other goods. The pan or dust mill, 9 feet in diameter, driven at about twenty-five revolutions per minute, will grind about forty tons a day. This is taken over a No. 8 screen for small pipes and coarser for large pipe. Then it is conveyed to the mixer and pugmill combined. The mixer is horizontal and has four crossbars in it, through which spikes about 18 inches long are fastened at intervals. These revolve and work the clay into a vertical pugmill attached. The clay is then carried on a conveyer to the pipe machine.

The process up to now will have found work for two clay fillers, one pan feeder, one boy at screen, and one at the mixer and pugmill. We now come to the pipemaking, and the best machine which I know of is the Coulthrust of Darwen (England). This is a steam machine, self-containing, with hydraulic arrangement for the table. These machines will make any size of pipe from 3 to 42 inches. The usual order is to have a small machine for 4, 6 and 8-inch sizes. It is found more economical to do this way and to use the big machine to make the large pipe only. The small machine will make 1,500 yards of 4-inch pipe, 1,200 6-inch and 1,000 9-inch pipe per day, and the process will take one feeder, one lever hand and attendant, two carriers and two finishers.

The process of making the large pipe is much more elaborate. The machine cylinder being filled with clay the stool goes up to its position. The hydraulic pressure then holds it fast and the socket is made. The hydraulic is then taken off and the stool is just balanced to take the weight of the pipe without any resistance which would cause any bend or bulge. The pipe is then slid onto rollers level with the stool with the socket ring still on it. A drum is now placed inside it and it is cut to the length required. Now it is taken to the turn cage with a board placed on the spicket end. The top of the cage, which turns with a screw, comes down on the board and the pipe is turned over. It is now on the board and is pushed on the finishing wheel. Here two men operate on the pipe, one on the socket and the other on the shaft. The pipe being finished a boy brings forward a bogie which has two prongs which just fits under the board, and with a spring lever which is attached to the handle, just raises the pipe off the wheel and takes it away to the shed floor. The men required for this process are two feeders, one lever hand and one attendant, two men at the rollers and cage, two finishers and two bogie hands.

The sheds are built two stories high with cement floors and overhead steam pipes 4 inches in diameter. The advantage of the overhead drying system is that you never have any cracked pipe; the socket drying first, you can keep the spicket end soft until it is turned up to be finished.

We now come to the kiln work. The kilns are round,

22 feet in diameter, this being the most economical size, as the kilns hold just one day's make, and is just what seven men can empty and fill in one day. The burning takes three days and nights and requires about thirteen tons of coal per kiln.

I now come to the odd stuff making, that is, bends, syphons, traps, etc. The great variety of these goods is too numerous to mention, and they differ according to the fancy of the designer or the locality for which they are made. Some are short and some are long, some small and some large, some have 6-inch seal, others are satisfied with 2-inch seal. Whatever the shape may be, when they come out of the kiln they must stand the test of being placed on a level plane with water in them to show what seal they have, and they must be exact as per the design or else they are rejected.

Now you will see from this that the model and moldmaker must be an up-to-date man; he will not only have to suit his employers, but the men in the background who wait to give their opinions upon all these matters when the goods are finished and are on the ground where they will be used. This man, the sanitary engineer, one of which is retained by every corporation in England, is to be satisfied on all these points pertaining to his business.

All this ware is made in plaster molds and only the most highly trained and skilled workmen are of any use in this branch of the industry. Most of the makers put a very fine slip both on the inside and outside of this ware to give it extra fineness.

The slightest bit of roughness means rejection. Dips can be made for this ware which will give the most beautiful effect for brightness and gloss and almost any color, and the most perfect white for inside or any part where they can be shielded from the fire dust.

Mangers and pig troughs are made on wood molds, just frame molds. They are built up inside the mold and the partitions faced by hand. Sinks are also made on wood molds with a plaster base to form the inside of the sink. These are made on a cement floor heated with steam. They are also covered with a slip to give them smoothness and gloss.

The clay for gullies, traps, etc., is put through a special process. The ground dirt with about 10 per cent. of fine ground grog added is ground in a plastic mill, a 9-foot solid bottom pan. This makes the clay tough and better to work. The same process is used for mangers, troughs and sinks, only with 15 per cent. of fine ground grog added. Waste water closets are also made in plaster molds and consist of tipper base and flusher with pan, trap and syphon. Corporations compel builders to furnish one of the closets to every cottage now built in most Lancashire towns; they are worked with the waste water from the kitchen sink and the down spout from the roof.

I now come to the making of salt-glazed brick, and this business, unless he has already excelled in it, is well worthy of the attention of any brickmaker. The possibilities of the salt glaze have not yet been exhausted. It is a glaze perfectly colorless, hard and of unquestionable durability. It will stand the test of time and of acids, no matter what acids. The atmosphere has no influence upon it. It is a glaze which meets all the demands and conditions which are required in a building material, and so it has the unquestioned right to have a favorable consideration. The reason why it has not made the progress in this country is a natural one—we have a rock fuel; you on the other side of the pond have a liquid fuel, and so have a great advantage over us in this matter. Salt-glazed brick have to be set in the kiln exposed to the fire, and so collect the dust which is made through having to burn with coal. Now oil fuel

does away with this difficulty; you can make salt-glaze white enameled brick second to none, and cream, buff, yellow, red, chocolate, maroon, black and numbers of other colors. What a white salt-glazed brick it would be, glazed all over, non-absorbent, impervious to all the atmospheric conditions. While the life of an enamel brick under ground is not more than ten years, the life of this salt-glaze brick would be 1,000 years and more, and the same can be said for all architectural terra cotta and building material.

Now I don't intend to give any trade secrets. As I am under no promise to do that, I am only giving you a detailed account of the method, and here it is:

In the first place, you grind your fire clay grog; this must be ground by itself and ground very fine. It must on no account be ground with your clay, but must be carefully mixed with the clay as the clay is ground to the extent of 10 per cent. The clay must be passed over a No. 12 screen, that is, twelve holes to the inch. The brick must be made with a mixer and pugmill, as stiff as possible, and stacked in a cool room for at least a fortnight. They must then be pressed without the skin being broken in any way, then placed on a flat barrow, about twelve on a side. The brick should now have water sprinkled on them and brushed over with a good soft, flat brush to remove all oil from the face of the brick. They are now taken to the dipper, who will dip them in the first or preparation body and place them on racks. Twenty-four hours later they will be dipped again in a dip to get the color required. After they are dry all the over-dip will be cleaned off the edges with a wire carding scrub brush. This will give them a fine finish. The kiln for these brick should be an oblong down-draft kiln. They must be set first stretcher and then on end alternate, bonded every three brick on stretcher course. The bonder should be burned brick and wedged tight across the kiln from wall to wall. The firing should take five days and nights and the burner should know his business, or he should have a man back of him who does. To burn the brick properly the fire boxes should be what we term box fire holes, 16 inches wide, 30 inches deep, 30 inch fire bars, with a lid. The two larger holes should be 1 1/4 inches in diameter, the small hole 1/2-inch, just large enough for a rod to go into, to lift it on or off. Start a small fire in each hole, the lids not to be used until the third day. Gradually move your fire until you have your first color. The burner at this period must make sure that he has no black mark in the center of his brick. He should draw one out of the bottom of the kiln to ascertain if there is any mark. If there is mark the fire must be kept at just that stage until it disappears, which it most assuredly will do if properly handled. The heat must now be raised to a white heat and maintained until ready for the salt, which should be thrown in three times, with an interval of two hours between each salting, and your firing continued at the last until all the fumes are clear and the glaze is bright and thick all through the kiln.

Now my task is finished, and I hope my American friends will not think I have written this in the spirit of a know-all. You may have gone beyond me in a knowledge of this subject, and perhaps you may have something to learn, and if that may be so I am at your command.

FRANK HARDY.

NO REPORT ON FIREPROOFING TESTS.

With the administrations in New York cutting down expenses wherever possible, the outlook for expert reports upon fireproofing is not promising. The expense would be almost too much to suit those at present in power. This is in no wise a reflection upon the administration. It is merely a statement of fact which is patent to anyone who watches the reports as they run. To spend a number of thousand dollars on anything of that character would probably be against the policy of Mayor Gaynor, and there is no possibility of the work being done within a reasonable time.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



MUCH MORE BUILDING operations are in full swing in Cleveland. The hammer and saw and trowel are hard at work shaping raw material into the finished product. Incidentally, the brickmakers and dealers are as busy as bees, the one manufacturing stock and the other selling it. The season opened early in March, when the weather moderated to a very considerable degree. At once the new buildings began to spring up on every hand, while work was resumed on scores of projects which were held up by the inclement weather.

Building permits for the month promise to eclipse by long odds any former records. They are greater than a year ago and much larger than in 1907, which was the city's banner building year. Building permits are being taken out at the rate of nearly 100 a week, many of them for good sized projects. About two-thirds are for dwellings and small apartment buildings.

The common brick plants are again all hard at work producing stock. There is no diminution in the call for common brick, and it is being turned out in quite as large quantities as ever here. The paving brick plants are particularly busy, as operations will be gotten under way. Shipments to many cities and towns are already starting, while the demand in the city and county itself will be unusually heavy this season.

Common brick prices are not expected to vary much this year. They have remained stationary for several years and will probably remain unaffected. Paving brick prices, however, are a little unsettled, and it is probable that they will be higher before all the big contracts are finally let.

Work is now in progress on the sixteen-story addition to the Rockefeller building on lower Superior avenue. This contract is held by the Thompson Starrett Company, of New York City. No sub-contracts of any kind have been announced as yet. Considerable brown shale and white enamel brick will be required for this job, which is to cost nearly \$1,000,000 to complete. Knox & Elliott are the architects for the structure.

Work is progressing rapidly on the new Elks temple on Huron road, brick for which is being supplied by the Contractors' Supply Company. It is a five-story building of ample proportions and centrally located. It will cost about \$150,000 to complete. The contracts call for it to be ready for occupancy about midsummer.

Searles Hirsch & Gavin have completed details for the twelve-story office building on Euclid avenue just east of East Ninth street for the City Investment Company. It will have a front of terra cotta and brick and will cost about \$400,000. It will have a frontage of 80 feet and will be 120 feet in depth. The foundation and steel contracts will be let first, the other contracts being awarded as the work progresses.

Contracts have been let for the new \$80,000 Priscilla theater on East Ninth street, at Chestnut avenue. It will have a front of iron spotted white brick. The masonry contract has been awarded to F. A. Kemsies. The tile contract was awarded to J. Ferrel & Son, of Columbus. The front of the new playhouse is to be worked out very elaborately in white terra cotta.

Mayfield Club is to erect a large modern club house near South Euclid this summer. Plans have been submitted by a number of architects and it is probable that definite ones will be adopted within a short time.

Many new manufacturing plants are being erected in Cleveland this year and many existing ones are adding to their capacity. The Comstock Wellman Bronze Company is erecting a new factory building at Superior avenue and East Sixtieth street from plans prepared by Architect V. D. Allen.

The Wellman-Seaver-Morgan Company is making an addition to its plant costing \$20,000. The Hydraulic Pressed Steel Company has had plans prepared by the Forest City Engineering Company for a new factory building, 85 by 250 feet in size, with a sawtooth roof. The general contract has been awarded to F. & D. Lindhorst.

The sum of \$50,000 is to be expended by the Cottage Creamery Company on a new five-story brick building to be erected on Woodland avenue near Central avenue. Plans were prepared by Architect J. Janowitz. A three-story brick stable is to be built in the rear. The office building will have a frontage of fifty feet and a depth of eighty feet. The general contract has been awarded to A. Carey & Son.

George B. McMillan has been awarded the contract for the new steel and brick building at E. Twenty-second street and Euclid avenue for the Wulbrand Company. It is planned to carry eight stories, but will be built to a height of only

The Stowe Fuller Brick Company, also of Cleveland, has increased its capital stock from \$100,000 to \$200,000.

The Contractors' Supply Company has moved its quarters in the Rose building to the offices formerly occupied by the Colorado Yule Marble Company. It will hereafter represent that concern, as well as many brick companies in this territory. Manager Mitchell reports that the spring business is opening up in fine shape and that the company will do a big brick trade this year.

BUCKEYE.

STANDARD PAVING SPECIFICATIONS.

THE PAVING CONGRESS resulted in the establishment of the Organization of City Officials for the Standardizing of Paving Specifications, and this organization is to meet again in New York City, January 10 to 14, 1911. Frank T. Fowler, then a member of the Chicago



Applying the Filler in Accordance With Standard Paving Specifications.

two stories for the present. It will have a front of white terra cotta. H. E. Shimmin is architect for the structure. The building has a frontage of 116 feet and is 100 feet deep. A large fireproof garage is to be built in the rear, which is 116 by 224 feet in size.

East Cleveland, suburb of this city, has \$150,000 to expend on new schools this summer. They will be of brick. Bids will be received April 1 for a four-room building on Shaw avenue, a six-room building on Phillips avenue and an eight-room annex to the Prospect school.

Another garage is to be built on Euclid avenue, this one for the Buckeye Garage Company. The main contract is held by Samuel Austin & Son. It is costing about \$10,000 and has brick walls with a tile roof.

The Minor Fire Brick Company, of Cleveland, has increased its capital stock at Columbus from \$50,000 to \$100,000.

Board of Local Improvements, but now superintendent of streets, was chosen president, the idea of the gathering having originated with him, and John B. Hittell, engineer of the board of local improvements, of Chicago, was elected secretary.

Its chief result, however, was the establishment of standard specifications for paving materials to be used in cities participating wherever found practicable. The committee which drew up the specifications for brick and granite block was made up of B. T. Fendall, city engineer, Baltimore, Md., chairman; M. F. McKenna, city engineer, Bridgeport, Conn.; D. M. Roberts, city engineer, Terre Haute, Ind.; John Minwegen, board of local improvements, Chicago, Ill.; M. R. Sherrard, chief engineer, department of public works, Newark, N. J.; Edward H. Christ, board of public works, Grand Rapids, Mich.; A. N. Aldrich, mayor, Aberdeen, S. D.; W. K.

Seitz, assistant city engineer, St. Joseph, Mo.; John B. Hit-
tell, chief engineer board of local improvements, Chicago;
J. A. Hooke, assistant sewer commissioner, St. Louis, Mo.

Brick Specifications.

The report of the committee is as follows:

"All brick must be strictly No. 1 pavers of the size com-
mercially known as vitrified block, the widths of which must
not vary more than one-eighth of an inch.

They must be thoroughly annealed, tough and durable,
regular in size, shape, and evenly burned.

When broken the block shall show a dense stone-like
body, uniform in color inside, free from lumps of uncrushed
clay, lime, air pockets, cracks or marked laminations, kiln
marks or surface cracks must not exceed three-sixteenths of
an inch in depth.

All blocks so distorted in burning as to lay unevenly in
the pavement shall be rejected.

All blocks shall be tested for abrasion and absorption.
The limits of loss by abrasion test and amount of absorption
to be determined by the engineer in charge of the work.

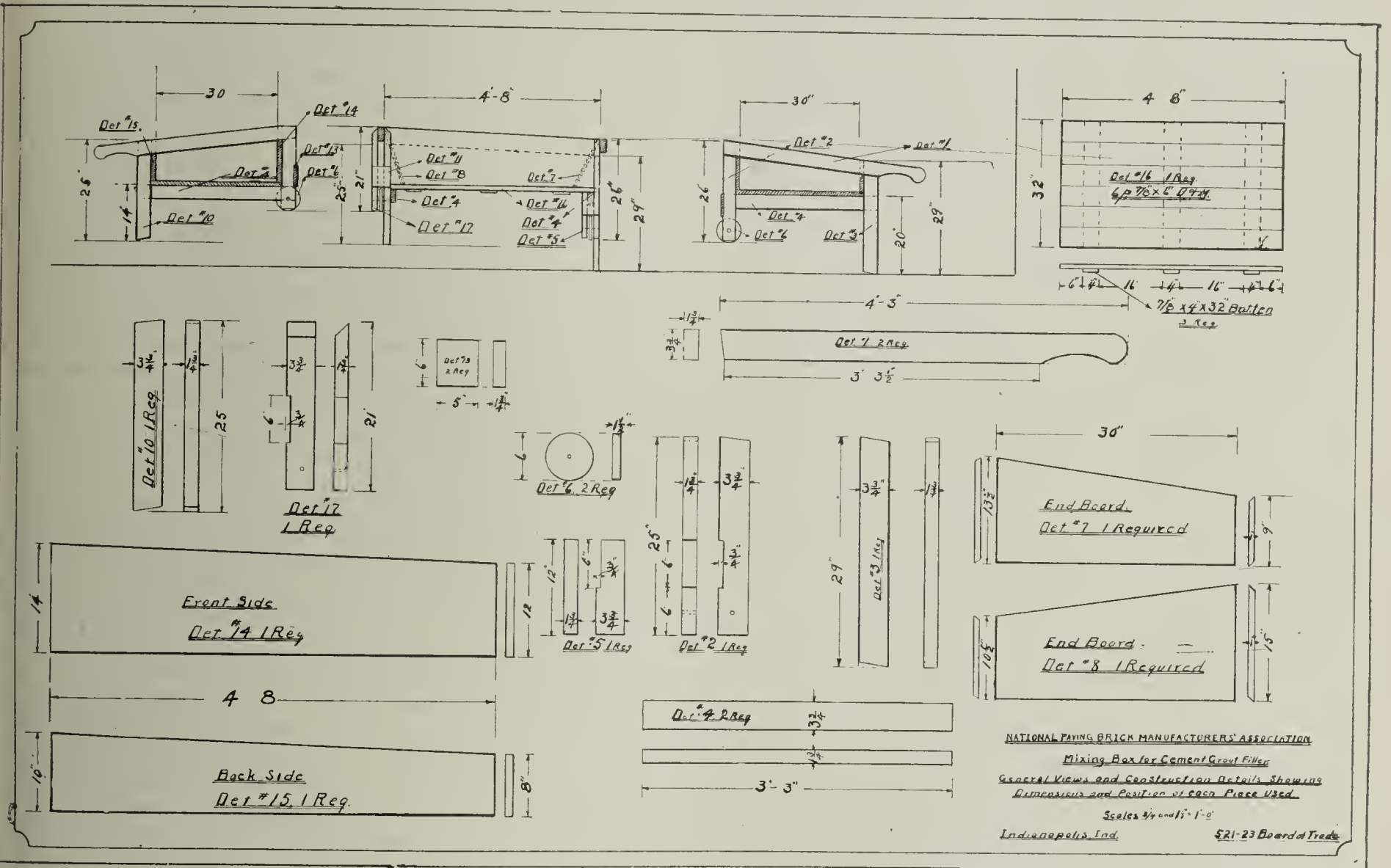
tive report on the rattler made by the National Paving Brick
Manufacturers' Association, together with plans and speci-
fications for rattler and with the suggestions for tests.

All blocks shall be laid on a six-inch concrete base with
sand cushion. The sand cushion shall be clean sharp sand,
spread to a uniform surface to conform to the cross-section
of the finished pavement; the sand cushion to be slightly
moistened and rolled with a hand roller weighing not less
than ten pounds per inch of width. The depth of sand to
be not less than one and one-half inches nor more than two
inches after rolling.

Cement Filler for Brick Pavements.

Your committee, after considering this matter carefully,
beg leave to report the following and recommend its adop-
tion:

The filler shall be composed of one part each of clean
sharp sand and Portland cement. The sand should be dry.
The mixture, not exceeding one-third bushel of the sand,
together with a like amount of cement, shall be placed in



Sketch Showing Dimensions and Construction of Mixing Box for Cement Grout Filler.

The abrasion test shall be made with the rattler recom-
mended by the National Paving Brick Manufacturers' Asso-
ciation and of the following shape and dimensions: A regu-
lar fourteen (14) sided polygon, circumscribed around a
circle 28 inches in diameter and the barrel to be 20 inches
long, with one-quarter inch spaces between each side, and
where cast iron staves are used the engineer in charge of
the work shall require greater loss from abrasion than when
steel is used.

Note—In view of the fact that the National Paving Brick
Manufacturers' Association is now considering a modifica-
tion as to dimensions and materials of the "rattler" now and
for some time in use, your committee advises that questions
touching the "rattler" be not considered until after the As-
sociation has reached a conclusion and made a recommenda-
tion as to this appliance.

For the information of the convention, we submit a tenta-

the box and mixed dry, until the mass assumes an even and
unbroken shade. Then water shall be added, forming a
liquid mixture of a consistency of thin cream.

The sides and edges of the brick should be thoroughly
wet before the filler is applied by being gently sprinkled.

From the time the water is applied until the last drop is
removed and floated into the joints of the pavement, the
mixture must be kept in constant motion.

The mixture must be removed from the box to the street
surface with a scoop shovel, all the while being stirred in
the box as the same is being thus emptied. The box for this
purpose shall be 4 feet 8 inches long, 30 inches wide and 14
inches deep, resting on legs of different lengths, so that the
mixtures will readily flow to the corner of the box, the bot-
tom of which should be 6 inches above the pavement. This
mixture, from the moment it touches the brick, should be
thoroughly swept into the joints.

Two such boxes shall be provided in case the street is

20 feet or less in width; exceeding 20 feet in width, three boxes should be used.

The work of filling should thus be carried forward in line until an advance of 15 to 20 yards has been laid, when the same force and appliances shall be turned back and cover the same space in like manner, except to make the proportions two-thirds Portland cement and one-third sand.

To avoid the possibility of thickening at any point, there should be a man with a sprinkling can, the head perforated with small holes, sprinkling gently the surface ahead of the sweepers.

Within one-half to three-quarters of an hour after this last coat is applied and the grout between the joints has fully subsided, and the initial set is taking place, the whole surface must be slightly sprinkled and all surplus mixture left on the tops of the brick swept into the joints, bringing them up flush and full.

After the joints are thus filled flush with the top of the brick and sufficient time for hardening has elapsed, so that the coating of sand will not absorb any moisture from the cement mixture, one-half inch of sand shall be spread over the whole surface, and in case the work is subjected to a hot summer sun, an occasional sprinkling, sufficient to dampen the sand, should be followed for two or three days.

Note—Or if a stronger filler is desired, pure cement may be used where streets can not be kept closed long enough to permit cement grout to properly set, or on account of any other local conditions, a bituminous filler may be used.

Rolling.

After brick in pavements are inspected and the surface is swept clean, the pavement shall then be rolled with roller weighing not less than three nor more than five tons in the following manner. The brick next the curb should be tamped with a hard wood tamper to the proper grade. The rolling will then commence near the curb at a very slow pace and continue back and forth towards the center, until the center of the street is reached, then passing to opposite curb and repeat in the same manner to the center of the street. After this first passing of the roller the pace may be quickened and the rolling continued until each brick is firmly imbedded in the sand cushion. The pavement shall be rolled transversely at an angle of forty-five degrees from curb to curb, repeating the rolling in opposite forty-five degree direction. Before and after this transverse rolling has taken place, all broken or injured blocks must be taken up and replaced with perfect ones. The substituted blocks must be brought to the true surface by tamping.

Expansion joints shall be placed parallel with and at each of the curb lines, and shall not be less than one inch in width. Said joints shall be filled completely with bituminous cement."

We wish to congratulate the Congress on making the specifications almost word for word with the specifications laid down by the National Paving Brick Manufacturers' Association, which has accomplished so much good in its work along this line. The fact that the specifications include the recommendation of a cement filler is another point of great importance. This will enable the engineers in the various cities using the Congress's specifications to lay down excellent pavements if they comply with them to the letter, the cement filler being a most important factor in the long life of the pavement, and a fact some city officials have been slow in comprehending.

"Steel Plate Fans" is the title of an attractive 56-page pamphlet just issued by the Green Fuel Economizer Company, of Matteawan, N. Y. Besides giving tables of pressure, velocity, horse power, etc., necessary for moving air, it also goes into the discussion of efficiency and cost of opera-

tion, as compared to the first cost of fans, takes up the various methods of construction and balancing and points out the necessity of having each fan suited to the particular requirements of an installation. This book will be sent free by the Green Fuel Economizer Company to interested parties.



Written for THE CLAY-WORKER.

A BRICK YARD FABLE.

AND THE KING said unto his servants, "Go to, let us make brick, and lo in a short time I shall be exceedingly rich"; and his servants said, "And where shall we get the dirt, oh king?"

And the king answered and said, "I will make brick out of any kind of dirt with my superior knowledge of chemistry." So the king built him a brick factory; lo, he spent much money, for said he, "My brick factory must be the best that ever happened." After all this had come to pass, the king started to make brick. The wheels turned, the clay(?) was put in the machine and it came out bricks. Then all the people shouted with a loud voice: "Look! Look! The bricks! The bricks! The king's bricks!" The bricks were then placed in the dryer and the heat turned on, but alas, they came out brick-bats. Then was the king very wroth; he said: "I have been deceived, I will get a machine that will make bricks that will not be brick-bats." So the king took more money and purchased another machine. He also told his brickmaker to scat, get out, and he hired him men who were sure to be successful, men who had turned switches in railroad yards, etc.

"Now," said the king, "we shall see what we shall see," and the king made many bricks and they were put through the dryer, and, although they came through the dryer mostly brick-bats, still the king kept on placing the "good" bricks in the kilns which had been prepared to receive them for burning. Then the fires were started, and after many days the firing was stopped and the bricks were burned.

After the bricks were cooled, preparations were made to remove them to the buildings, where they were to be laid up in fine style and where they would be a monument to the king's wisdom forever. But what is all this commotion at the kiln, and why is the king so wroth? Again, said he, "I have been deceived, the bricks are no good," and alas, it was only too true. Those bricks that had cost the king so much, where are they today—they are filling the ditches around the place where once stood the king's brick yard. But the king was not to be foiled. Said he: "Across the river there is a small brick yard owned by a widow. The brick made there are good brick, for have I not used them to build my mills and factories? I will purchase this yard and then I will make good brick, for the clay there makes good brick." So the king, after much bartering, bought the widow's brick yard. Now this widow had as her brickmaker a man who had made bricks all his life, but the king said, "I don't need him," and straightway let him go. The king's servants now went to work to make brick, after changing things around to suit the king, but, alas, the king was again disappointed, for while the yard had good clay and had always made good brick, still the king's brick were no good, and he found nothing but disappointment and vexation of spirit.

The moral of this true story is, that all dirt will not make good brick, and that good clay will not make good brick without a practical man and brains to do it.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE GROWTH of the city since the disaster of 1906 is convincingly told by statistics gathered from the postoffice department, the Spring Valley Water Company, the Pacific Telephone and Telegraph Company, the San Francisco Gas and Electric Company and the Metropolitan Light and Power Company. These show that not only have business and population been restored to the normal, but that both today are far above what they were on April 17, 1906, the day preceding the conflagration. The statistics may be taken as a reliable forecast of what the United States census to be taken next month will show.

The building record for last month is not especially satisfactory, but is considered about up to the average for February. The valuation of contracts recorded is comparatively small, but with the large number which were not recorded is estimated at about \$2,066,000, and the proportion calling for brick construction is decidedly encouraging, amounting to about a million and a quarter.

There is one very adverse factor in the present situation which is greatly retarding operations, especially in the apartment district. This is the requirement in the new San Francisco building code, setting aside a large proportion of each lot for light and air space. Property owners regard the ordinance as oppressive, and have organized a strong movement for the amendment of the law. This has resulted in many contracts being held back, and it is stated by real estate men that comparatively little new work will be started until some change is made in this ordinance.

The local brick market is about the same as it was a month ago in regard to price and with but a slight increase in demand. The demand is expected to increase at a great rate during the month, due to the coming on of the spring building season, but the price is not expected to come up from around the low figure of \$6 per thousand, as the output of the local plants will still exceed any exceptional demand made upon them. In Los Angeles the price of common bricks has advanced 50 cents on the thousand over the low prevailing figures of \$6 to \$6.50. The price of blue bricks in the southern city has also advanced 50 cents on the thousand, being now quoted at \$9 per thousand.

Building operations from now on will receive a stimulus from the weather conditions and all the brick dealers around the bay are awaiting the awarding of contracts. The pressed brick and terra cotta dealers in this city expect a prosperous year, both from the standpoint of amount of business and of prices. The common brick dealers, while not so optimistic, expect to keep going and to try to survive the price war by reducing the cost of manufacturing and transportation. All building work in the large cities of the Northwest has been brought to a standstill by heavy storms and unusually cold weather, but it is expected that building conditions will soon come back again to normal.

During the spring and summer a good deal of sewer work will be done in San Francisco and vicinity. The finance committee of the board of supervisors has agreed to invite bids for the purchase of \$116,200 worth of 3½ per cent. sewer bonds of the issue of 1904, the money realized to be used to cover the cost of the various proposed sewer improvements throughout the city, those interested in the individual jobs agreeing to buy the bonds. The city of Mayfield, Santa Clara county, just south of San Francisco, has asked for bids for furnishing material and labor for constructing a complete sewer system in the town. Many other large inquiries for sewer pipe are coming up all over the state, and manufacturers are assured of a very active season

in this department, though the most important contracts will not be let until later in the spring.

The Carquinez Brick and Tile Company expects to have the new continuous Hoffman kiln ready by April 1. The one kiln now running has a daily capacity of 40,000 bricks and the addition of the new kiln will increase the output to 80,000 bricks a day, or 2,400,000 a month. The plant originally cost \$175,000 and the present improvements will cost \$50,000 more, but the management expects with the increased output of the factory to get a large share of the common brick contracts in San Francisco and vicinity.

The Vallejo Pressed Brick and Supply Company has secured the contract for bricks for the government magazine buildings at Mare Island navy yard.

Edward Cornell is hunting for a clay bed favorably located for a brick plant at Porterville, Cal.

The Glazed Cement Sewer Pipe Company, of Tacoma, Wash., will move its plant at Tacoma to Aberdeen, Wash., at an expenditure of \$20,000. Charles Allen, manager of the Tacoma plant, will have charge of the plant in the new location.

E. Blanckenburg, a building contractor of San Francisco, is in Monterey, Cal., studying the outlook and situation in regard to establishing a glass tile works near there. The product of the works will be glass tile, which has been made in the East, but the manufacture of which has not yet been undertaken on the Coast. The tiles are used for floors and wainscoting, face tiles and brick for front of buildings, lining for light wells, etc. It is proposed to organize a company with a capitalization of \$100,000, divided into 10,000 shares. It is estimated that a fully equipped plant of this kind will cost in the neighborhood of \$50,000.

The Golden Gate Brick Company has secured the contract for face brick on the west wing of the Southern Pacific hospital in San Francisco.

J. E. Brink, of Kelso, Wash., has been in Portland, Ore., buying machinery for a new brick plant, which will be erected at once.

The Ione Fire Brick Company reports a larger volume of business in fire bricks for February than in any previous month since the organization of the firm. Ione fire clay has become a staple article on this market, owing to its superior quality, and is extensively used by the large sugar refineries, oil plants, steamship companies and lumbering concerns on the Coast.

The California Stoneware Company, of Oak Park, Cal., has installed a complete set of pottery machinery. From a small beginning ten years ago to the present time, the factory has steadily grown in size and is now putting out an average of ten carloads a month.

Roberts Brothers Construction Company, of Yreka, Cal., has secured some large contracts for buildings and is starting a new run in its brick kilns.

The Pureclay Brick Company has closed down its plant on account of the depression in the local market. It is expected that the kilns will soon be started again, as the building season is about to commence in this city. The company produces a very fine wire-cut brick, which sells in this market as stock brick.

The Tropico Tile Works, of Acton, Cal., is shipping out a large amount of silica from Ravenna.

The Craycroft-Herrold Brick Company, of Fresno, Cal., has been incorporated with a capital stock of \$50,000 by C. J. Craycroft, I. Z. Ickes, F. J. Craycroft, G. D. Herrolis and William Turner.

Thompson and Porter, proprietors of the Eureka Brick and Tile Company, of Eureka, Cal., have secured the contract for bricks for a large planing mill at Scotia, Cal.

Field Brothers, of Portland, Ore., who recently purchased a brick yard in Eugene, Ore., have planned to invest \$10,000 in new machinery and equipment. The management expects to manufacture brick on an extensive scale during the year and later to install a complete set of tile machinery.

San Francisco, Cal.

SUNSET.

FURTHER INFORMATION REGARDING THE DIESENER
CLAY CLEANSER—ANSWERS TO INQUIRIES
FROM CORRESPONDENTS.

BY RICHARD G. HOFFMAN.



UG MILLS, WET PANS, disintegrators and so on have become so familiar to the practical clayworker that if the character of the clay and of the goods to be made of it are given, the proper selection of the machines best adapted for the purpose can be done without difficulty.

The Diesener clay cleanser, on the other hand, is yet so new to most people, even if they have seen it in operation, that I take pleasure in answering publicly several ques-



Fig. 1.

tions which were asked by different correspondents. For instance, my statements as to power required meet with much doubtful astonishment.

To begin with, I will give an extract from a letter which I received recently: "In reply to yours, I am at loss to understand how you can remove pebbles and other material from our green clay, which is very tough and plastic and requires immense pressure to force it through our dies, which have openings of fully one inch," etc.

This factory is making sewer pipe, fireproofing, vitrified conduits, and the author of the letter had the conception, which is right, that if it takes about eighty horse power to make a fireproofing of 1-inch web, how immensely greater must be the power to press the same quantity of clay through a slot of 3-16 of an inch at the same rate.

Now, in brick presses most of this power is consumed by friction. The friction is generated not only between the stream of clay and the screw, or the body of the machine, or the die, but more between the diminutive particles of the clay itself in changing from an area according to the inside diameter of the brick machine to the area according to the die. The friction within the clay itself is naturally greater with tough clay than with loose clay, greater with clay from the bank than with clay that has been weathered. It is on account of the general application of the weathering of the clay in Europe that the machine builder over there can build in so light a style, which the American would consider inadequate to the requirements in this country.

To get an idea of this immense friction within the clay we only need to consider a common auger machine with 18-inch inside diameter of body forcing clay through an opening of $8\frac{3}{4}$ inches by $4\frac{1}{2}$ inches at a rate of 30,000 brick a day, or

about 120 tons. It means a change from an area of 254 square inches travelling 0.42 inch per second to an area of 39.3 square inches travelling 2.7 inches per second. The whole change taking place within a distance of $2\frac{1}{2}$ feet from the greatest diameter to the smallest, and within this distance of $2\frac{1}{2}$ feet the greatest amount of power is consumed.

If we now consider the process in the Diesener machine we first observe that the friction occurs only at a small area near the disk and not throughout the stream of clay. It is only the friction resulting from the tearing off of a slice of clay 22 by 6 inches, the latter figure being the height of the bar of clay near the disk. This slice is pressed against the disk and by means of the inclined plane spread upon it like butter is spread upon bread. It is evident that the shearing strength which an area of 22 times 6, or 132 square inches, of stiff or soft mud clay offers is negligible, if compared to the resistance which a clay bar of 254 square inches will offer to being forced through an opening of 39.3 square inches. Therefore, it is evident what has been indorsed by the practice in every plant where the Diesener clay cleanser

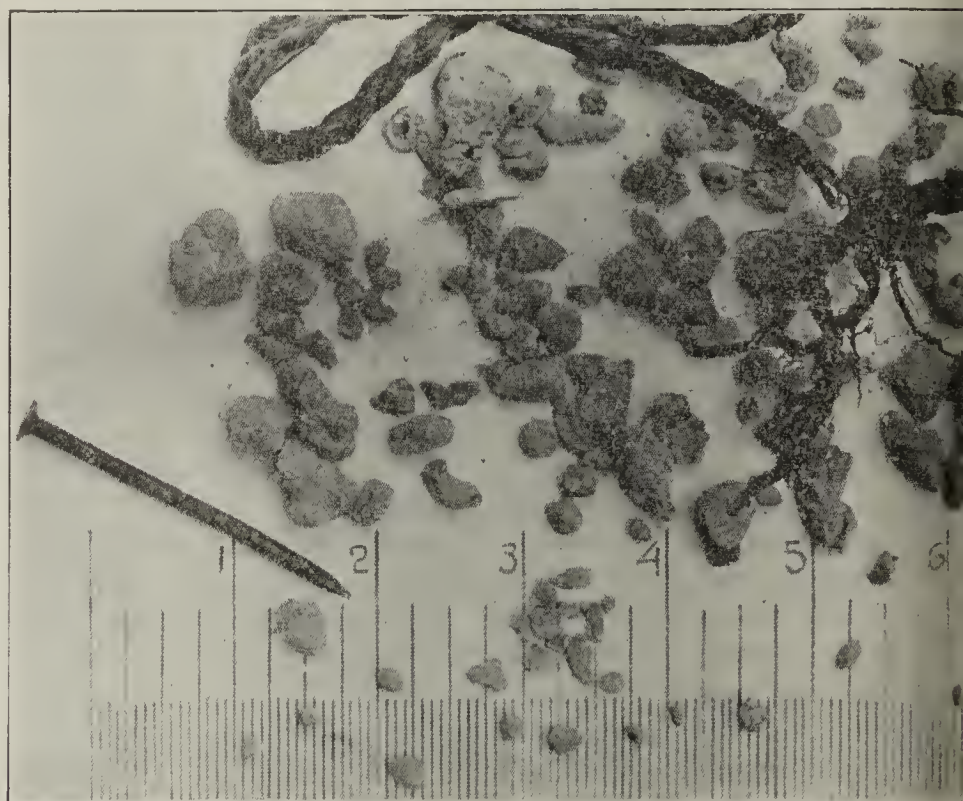


Fig. 2.

is used that this machine requires so very little power. I have statements giving figures as low as one to two horse power up to six horse power.

I have illustrated the action of the rotating disk and the inclined plane upon the clay by Figure 1, in which a lump of clay is spread over a board by means of a knife, which represents the inclined plane of the machine. It is the method which the potter of olden times used to clean his clay: he placed a batch of soft clay upon his work table and spread it out with his knife, the edge of the knife tearing to pieces lumps of tough clay and extracting the stone, according to the thickness the clay is spread upon the table. In the illustration several lumps of tough clay and stones can be seen protruding from the clay after the knife had passed over them. By spreading the clay into thinner and thinner layers the potter was able to pick out the stones and make the whole mass homogeneous. The machine does exactly the same; it spreads the clay to the desired thickness, picks out the stones and tears the lumps to pieces.

Concerning the lasting of the disk, some correspondents seem to be afraid because their clay is so very sandy that the dies of their presses wear out very rapidly. Certainly so would the Diesener disk were it not for the fact that almost all friction is generated continually only in the shearing

area of 22 inches by 6 inches, and according to the width of the slot, about one-fourth inch, or three-sixteenths inch, or one-eighth inch, or one-sixteenth inch, etc., distant from the disk. This fact explains why the wear and tear of the disk itself is insignificant. It must be distinctly understood that between the bar of clay and the disk there ought not to exist any grinding action; if it does, that would indicate that the speed of the disk is so great that the clay cannot follow at the same rate. In this case the clay would soon grind a groove into the surface of the disk. That the disk at all becomes finally untrue is due to stones which did not follow at the speed with which the clay is "sucked" through the slot. While the difference of speed between the disk and the clay should in any case equal zero, the speed between the disk and the stones, especially if larger stones, might be considerable, and therefore might tend to the wearing of grooves in the disk. Nevertheless, the life of the disk is very long, and although the first machine was installed in 1904 there have been only a few disks exchanged within this time, while some other concerns state the disk in their plants will last from eight to ten years. On the other hand, the slot adjuster has to be adjusted with sandy clays every few days, as the slot enlarges itself by the passing clay grinding away the edge of the slot adjuster. This, however, is of no consequence as the slot can be conveniently and simply brought back to its original size by moving either the disk on the shaft or the slot adjuster itself.

Concerning the smallness of the pebbles which can be

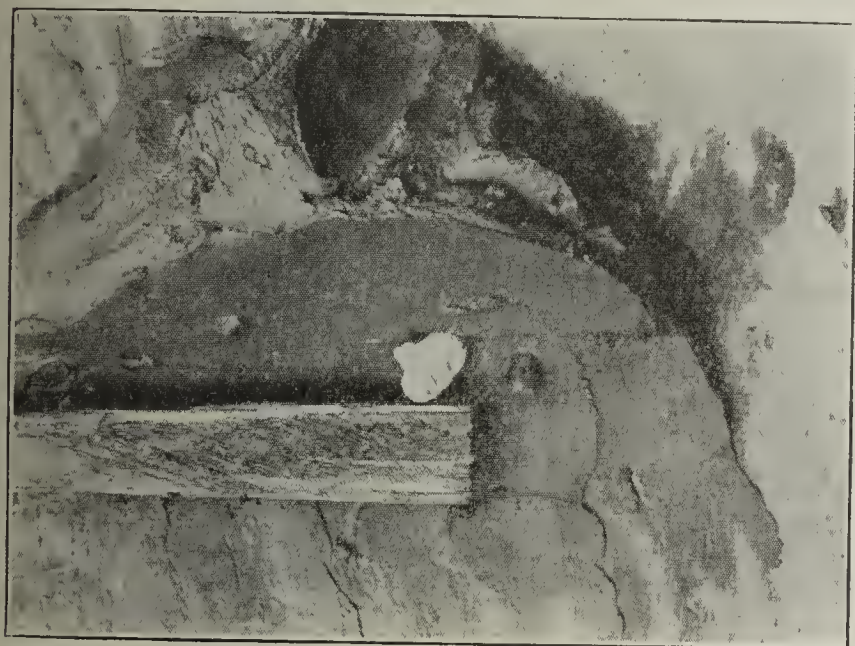


Fig. 3.

removed from the clay, depends, apart from its size with regard to the width of the slot, merely upon its being so hard or so tough as to allow the knife to push it through the mud into the stone chutes.

Naturally the impurities, when pushed from the clay, are not as neat and clean as the picture suggests, as they have been washed in order to be more distinguishable when photographed, but there is only very little clay adhering to them when they are pushed into the stone chutes. As the question has been asked, whether or not a considerable amount of clay will be lost in the removal of the impurities, I have prepared Figure 3 to discuss this question. It is a matter of course that many impurities will involve more loss of clay than a few, but whether ten per cent. or one-tenth of one per cent. have to be taken from the clay, the lost clay in every case will be proportionately insignificant. It will be remembered from the description of the machine that the bar of clay in going down the inclined plane to the disk is guided on right and left by the doors of the stone chutes. Between the doors and the clay there is placed a lump or pillow of clay. Every piece of stone or wood or whatsoever that is pushed by the knife (which moves in the slot) through the clay out into the chutes is therefore pushed through the above mentioned pillows of clay. This is illustrated in Figure 3, which shows a batch of clay, in which a pebble is being pushed by a piece of wood, which represents the stone pusher or knife. Now if this pebble were covered with clay, the clay would be stripped off by the batch and therefore would be prevented from being ejected with the stone.

It is remarkable how difficult it is to form a correct opinion as to the percentage of impurities existing in a certain

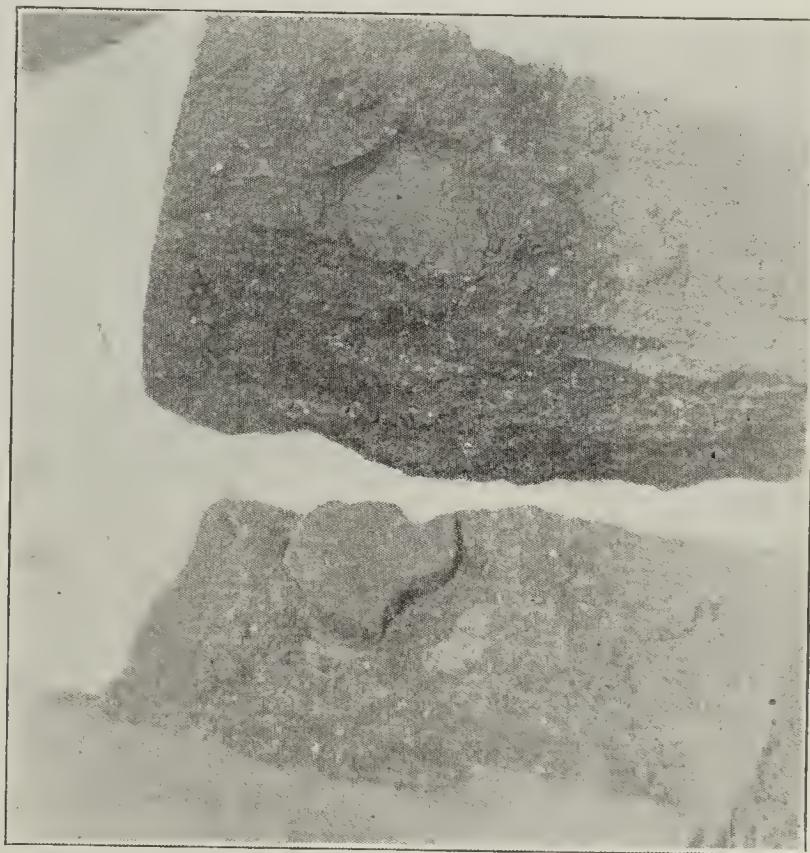


Fig. 4.

removed by the Diesener machine, it will be unanimously admitted by every practical clayworker who has seen the machine in operation that this clay cleanser has reached a degree of perfection which is unsurpassed by any other mechanical process for the same purpose under similar conditions. The Diesener machine purifies clay without loss of time and without altering its condition. Simply place the Diesener machine with its auger between the pug mill and the brick machine, adjust the slot according to conditions and requirements of the special case, from three-eighths inch to one-sixteenth inch, and the Diesener will do the rest.

Figure 2 shows a number of limestone pebbles and gravel, a piece of a cord, a nail, roots, etc., and the scale indicates that these impurities are from about one-sixteenth inch up to three-fourths inch in size. They show the size and nature of objectionable matter which can be removed by the Diesener machine working with a slot of one-sixteenth inch. It will be noticed that the Diesener clay cleanser acts not only upon hard substances like rock pebbles and the iron nail, but also upon matter entirely different from these, like the cord or the roots. The question, whether or not a material can be

clay before this clay has gone through the Diesener machine. In a certain case it was guessed that pyrites were present up to about one-half of one per cent. When the Diesener clay cleanser was installed it was found that the whole impurities amounted to about 10 pounds per 12 tons, of which there was just one handful of pyrites. Still if that handful on every 10 tons were "wet-panned" and mixed into the clay for large pieces of terra cotta, for instance, they might easily have spoiled the profit on the 10 tons of ware.

Supposing a manufacturer of terra cotta would use 100 tons of clay per day, and in order to get rid of the pyrites had to use the dry process. It is very simple and convenient to mill and to screen 100 tons of clay per day, but this clay

has to be dried first, and there is where the big item in the cost of preparation comes in, to say nothing of the inconvenience in handling the wet clay and the space needed for it. But still the main purpose has not been accomplished, as even the objectionable matter is still in the clay, and even the ground and screened pyrites might show up by a discoloration of the enamel.

To wash daily 100 tons is still a worse proposition; there comes the expense for the installation of slumming tanks or settling pits, the outlay for water and power, for the hand labor to take out the washed clay, to place it into the dryers, to mix it again and make it homogeneous. In a case I know of all the apparatus was installed and the slumming had been started when it was discovered that the clay once dissolved would not settle again, but remained in solution so long that a whole system of lakes would have to be excavated in order to give the daily amount of washed clay wanted.

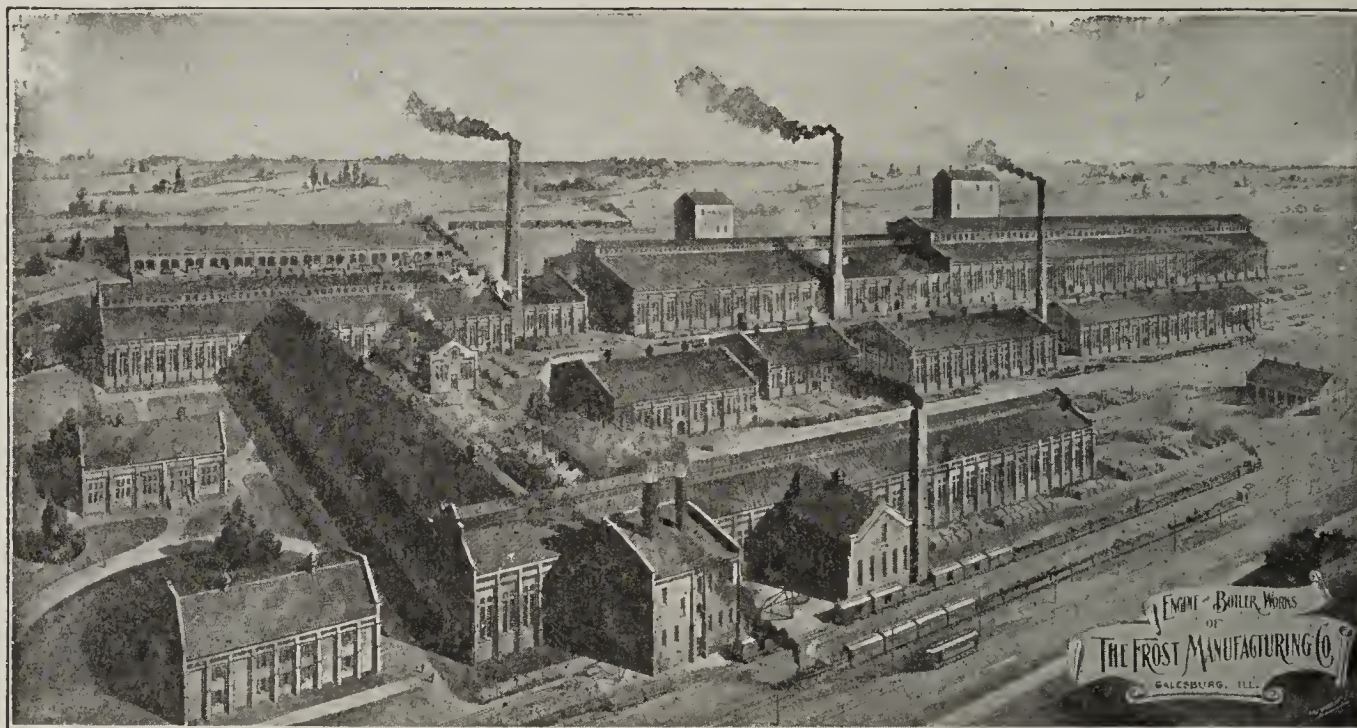
Now if all this work were done to remove impurities amounting to 50 per cent. from the clay, it would not be so utterly disproportionate, but to be compelled to wash or dry 100 tons just to catch this fifty pounds of pyrites, this is "mean." It is here that the Diesener process shows its merits in the best light; it takes out the one-tenth of 1 per

and that cotton seed flour has from five to seven times the nutritive value of our well known cereals. Well, we have been eating the cotton seed oil product in the place of lard for some time and have been feeding the cows on cotton seed meal and drinking the milk, so it is only going a step farther to eat the cotton seed meal ourselves and then maybe we won't need the milk or butter. Maybe that is the key to reducing the cost of living.

OF INTEREST TO CLAYWORKERS.

THE Frost Manufacturing Company, of Galesburg, Ill., who for fifty-nine years have been manufacturing a line of power plant equipment, has recently issued a new and complete set of bulletins, which, to our mind, are marvels of the printer's art. They are distributing them to their friends and customers who are sufficiently interested to ask for a set. The bulletins illustrate and describe in detail every machine and appliance manufactured by this company, which embraces nearly everything necessary in a modern power plant.

Frost engines and boilers are well and favorably known throughout the civilized world and many units are being



The Frost Manufacturing Company's Plant, Galesburg, Ill.

cent. or 10 per cent. of impurities without necessitating any additional expensive operation. The Diesener clay cleanser not only purifies clay, but in addition to this it makes the clay homogeneous. Sometimes great losses are due to checking of the brick in the dryer; this checking can in most cases be traced to not homogeneous mixtures. If, for instance, wet clay is mixed with dry powdered clay in order to make the mud stiff enough and the mixing process is effected in pugmills, instead of in a wet pan, the existence of conglomerates of dry clay within the soft mud can not be obviated entirely and will become evident in the dryer, because the dry lumps will shrink less than the rest of the brick in question, thereby spoiling it by checks. Fig. No. 4 shows a piece of shale embedded in a stiff-mud brick which showed checks on its face, thereby betraying the hidden cause for the checking. A lump of dry clay in place of the shale of the same size would have had just the same effect.

I hope that the above information may be helpful to manufacturers and assist them in overcoming their troubles.

Now the experts are beginning to tell us that the cotton plant is capable of not only clothing us, but also feeding us

operated in the most remote countries of the earth. But few readers of THE CLAY-WORKER realize the wonderful growth of the Frost company, but the accompanying illustration will serve to partially show the extent of their up-to-date plant, which covers twenty acres of ground. The product consists of automatic and throttling engines, a full line of horizontal and vertical tubular boilers, open and closed feed water heaters and purifiers, air receivers, tanks, etc.

Galesburg is also the home of the famous Frost dry pans, of which so many are daily grinding raw material for clay products in all countries of the world. This pan was first put on the market in the early eighties and has been the standard pan construction since that time. Some of the first machines this company built are being operated today, with the original wearing parts still in use, after twenty-five years of service. A catalogue and bulletin explaining the many superior points of the Frost dry pan will be sent to anybody on request. See advertisement on page 541.

A large part of the business of this company is the manufacture of sand mills, brick rattlers, wet pans and chaser mills. These machines are extensively used by steel foundries, cement mills and similar industries.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



BUILDING for 1910 in Chicago has struck its gait at last to all appearances, and, while the record for this year in all probability will not exceed, and, indeed, will scarcely equal the phenomenal showing made in 1909, it will at least be very respectable by comparison.

It has been a busy month for Chicago brick men, this last one, with labor troubles for a time threatening to tie up everything and spoil business until late in the year. A paving material convention brought the brick paving men to arms to lead onslaughts upon rival materials and advance their own standards. In the meantime many new ventures involving the construction of large buildings have been set on foot, architects have completed plans and many good contracts have been let.

Probably the biggest proposition on the boards by all odds is the proposed plan of the Commonwealth-Edison Company to erect a gigantic plant at Addison and Roscoe streets, which when finally completed is expected to cost between \$15,000,000 and \$20,000,000. Already this great public service corporation has purchased 109 acres of land on the North branch at the point indicated. This seems at first glance like a tremendous undertaking, but the company's original plant at Fisk and Quarry streets represented a total investment of about \$6,000,000, and it outgrew that until now the total investment at that point runs to double the original figure or a trifle over, and still the demands show great need for still more increase in capacity.

The Lenfesty Milling Company is reported to be planning a new structure to cost well over \$100,000 at 9 to 21 West Kinzie street, between State street and Dearborn avenue. J. T. Lenfesty, president of the company, has just bought property at this point extending back to an alley across which is the Chicago & Northwestern freight house. This is only one of the many industrial buildings planned. Purchases by the Illinois Steel Company, the Iroquois Iron Company and other large concerns toward the southern limits of the city indicate that the great industrial region of the Calumet district is going to grow in size and wealth during the next few months.

The general characteristic of the building activity of this year seems to be a tendency to greater individual expenditures than marked the building of 1909. For example, during February this year only 688 permits were issued by the building department as against 828 for the corresponding month last year. On the other hand, the estimated expense involved was only \$5,159,000 for the greater number of buildings last February, as compared with \$5,678,600 for the lesser number during February of this year.

A \$1,000,000 skyscraper office building for the Chicago Telephone Company, to be built adjoining its present building on Franklin and Washington streets, is the only recent announcement of big downtown construction made, but there is enough work already in prospect to keep the dust flying and some of the main streets in a state of semi-blockade for all the rest of the year. At the same time, a number of the gigantic structures started last year are nearing completion. Among these are the Steger building at Jackson boulevard and Wabash avenue, the People's Gas, Light and Coke Company's magnificent new structure at Adams street and Michigan avenue and the Vendome building, Michigan avenue and Van Buren street.

Business was so good last year and has started out so well this year that there are signs of growth and prosperity on all sides among the material and brick men. The Chicago Fire Brick Company, of which Mr. Charles S. Reed is president, has moved its administrative offices from the plant on West Forty-fifth street, between Clark and LaSalle streets, to the Commercial National Bank building, where it now occu-

pies suite 837-839. The product turned out by this company has brought its name into industrial prominence in the last few years rapidly. Its capacity has been increased two or three hundred fold, according to Mr. Reed, and even now they have orders to keep them busy for months in advance. This company supplies the Illinois Steel Company with several million brick a year, but the bulk of its business is in supplying customers all through Illinois, Wisconsin, Iowa, Michigan, Minnesota and the Northwest.

"The outlook for the year is very bright," says Mr. Reed, "and we believe we are going to sell all the brick we can make."

And Mr. Reed voices the convictions of many others who are interested vitally in the building activity of the country.

SCRIP.

Written for THE CLAY-WORKER.

BRICK NEWS OF NEW YORK AND VICINITY.



COMMON BRICK took a sudden jump this month and is now held at \$6.50 to \$6.75, with a possibility of an advance to \$7.00 to \$7.50 per thousand. At one time New York City and vicinity had but three cargoes, but manufacturers succeeded in getting a flotilla of scows started, and now there are a dozen or so cargoes. For a time it looked as though some of the Hudson river yards would be damaged by floods, but fortunately that has passed, and with the ice gone the outlook for obtaining sufficient supplies is better, and perhaps the high price will not develop. Many builders are buying such supplies as they need now from agents and hope in this way to have a sufficient quantity on hand to carry them through until the season when new brick is available. In a way this will force the hands of manufacturers who had determined to hold all they could up the river until navigation is fully resumed in the spring.

So far little has been heard about a possible disagreement in the building trade this spring. Most builders are hoping that the sometimes troublesome May 1 will this year pass without an upheaval. With capital ready for investment in all sorts of construction operations, it would be little short of a calamity to have a strike or even a disagreement occur. What is wanted this year is united action upon the part of both capital and labor.

Among the big work projected since last reports there are a number of subways, some of which will open sections of the East Side of the city, now comparatively inaccessible, and thereby increase the demand for new buildings. In all, some eight miles are projected. The demand for brick for these subways will, of course, be heavy, while the demand caused by the construction of the subways, to be used in the new buildings required, will be equally heavy.

BURTON.

THE BERLIN EXPOSITION POSTPONED.

It seems that there has developed some misunderstanding that has led to a postponement of the proposed All-American exposition in Berlin during the present year. There seems to have been some objection raised on the part of German machinery manufacturers, or at least the impression in Germany got to be one of American invasion and finally things reached the state where it was decided to postpone the exposition for a year and probably change it from an All-American exposition to a German-American exposition, including the products of both countries. Among other things, it is recommended that those who take part in the exhibits at this great exposition should advertise through those German mediums which cater to the special class of people it is desired to interest in their offerings. This advertising can be placed through agencies in Germany and the Bureau of Statistics in Washington will supply anyone interested with names of these agencies and other information necessary to carrying out an idea of this kind.



Glazed Brick.—A good mixture for glazed brick can be made by the addition of a white sand to a yellow burning clay. The brick are first burned to cone 6 to 7, then glazed and burned again by a temperature between cone 08 and 06. The following glazes will hold free of crazing on such bricks:

Opaque Cream Frit—Oxide of tin, 1,650 parts; feldspar, 625; plastic clay, 375; flint, 1,700; white lead, 4,050.

After fritting add: Plastic clay, 375 parts; flint, 1,000.

Opaque White Frit—White lead 27, 27,005 parts, feldspar, 4,298; kaolin, 3,250; flint, 1,672; oxide of tin, 840.

After fritting add: Kaolin, 1,000 parts.

—Sprechsaal, No. 48, 1909.

A Few Points for Brickmakers.—Among many brickmakers and their foremen there are only a few who can tell exactly what the clay will do which they are working. They do not know the temperature at which their brick burn and do not know what shrinkage the brick have. Every brick yard should be provided with some small testing apparatus for testing the clay which is used. The cost of such apparatus is small, and is a paying investment in the long run. The shrinkage is one of the first things which should be exactly determined at every yard. The shrinkage is divided into two parts, the air dry shrinkage and the burnt shrinkage. When the brick is 260 millimeters long when it leaves the machine, and it is 247 millimeters long when dry, then the shrinkage is 13 millimeters on 260, which produces on 100 millimeters—

$\frac{13}{260} = 5$ millimeters, or 5 per cent. In the same way can

be figured the shrinkage from the green brick to burned brick. In order to find how much water is used in tempering the clay we have the following calculations: When a brick weighs 4,500 grams when it leaves the machine, and when it is dry it only weighs 3,600 grams, it lost 900 grams of water. On 4,500 grams it lost 900 grams, which gives on 100 grams—

$\frac{900}{4500} = 20$ grams, or 20 per cent. In measuring the tem-

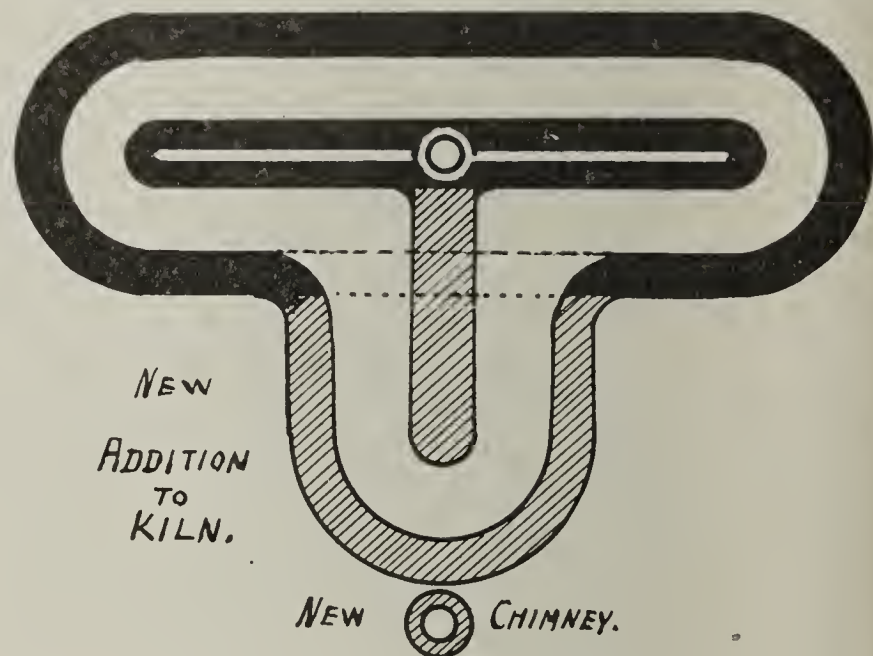
peratures in the kiln, cones should always be used, as they are the simplest method of determining the temperature. In the first test enough cones should be put in the kiln so that it can be easily determined what cone has gone down, and the next time these numbers are used again.—Tonwaaren fabrikant, No. 23, 1909.

Export of Clay Products of Germany.—The entire German clay industry has been in a poor condition for the last two years, due to the disquieting condition of the commercial situation generally. The brickmaking industry, which plays such an important part in the commercial situation, has been very poor on account of the bad condition of the building trade. That the export has been affected also shows that the importation of all kinds of clay products into Germany was for the first ten months of 1909, 62,533,000 marks. There are several countries which import German clay products, and at the same time also export their own products to Germany. Of these countries Austria-Hungary is the most important. The trade between that country and Germany is very brisk, especially as the duties are only nominal, and the duty declarations not troublesome. Just the opposite

condition exists as far as Russia is concerned, and the trade is therefore far less. About one-fourth in some cases and about one-third in other classes of the total export in clay products, is with Austria-Hungary. Next in line is the Netherlands, where the freight and duty exchanges are very easy, and the transportation is carried on over the many water routes between the two countries. The other neighboring countries take a place according to their industrial development. The greater part of the importation of paving brick comes from Sweden and the balance from Denmark, while Great Britain sends over all clay products by vessels as ballast.

The greatest part in the export trade is taken by the fire clay products, which amounted in the first ten months of 1909 to 1,029,865 tons. Taking the standard price of 2.40 marks (58 cents), then the total value is 4,161,000 marks. About the same amount was exported to Belgium, France, Italy and Russia, while Netherlands, Austria and Switzerland took the balance. Crucibles made of clay, magnesia and graphite were exported to the extent of 1,500,000 marks, while the importation of these articles was nearly nothing.—Deut. Topf. & Z. Z., No. 97, 1909.

Enlarging of a Continuous Kiln.—When plenty of room is to be had a continuous kiln can be enlarged in such a way as not to injure the existing part and still get all the benefit



Enlarging Continuous Kiln.

from the old kiln. A half circle kiln is built at right angles to the center of the long part of the kiln. It will necessitate the construction of a new chimney, and the kiln addition can be so constructed that the new part can be used only when is necessary. The cut will illustrate the plan which can be followed.—Tonind. Z., No. 143, 1909.

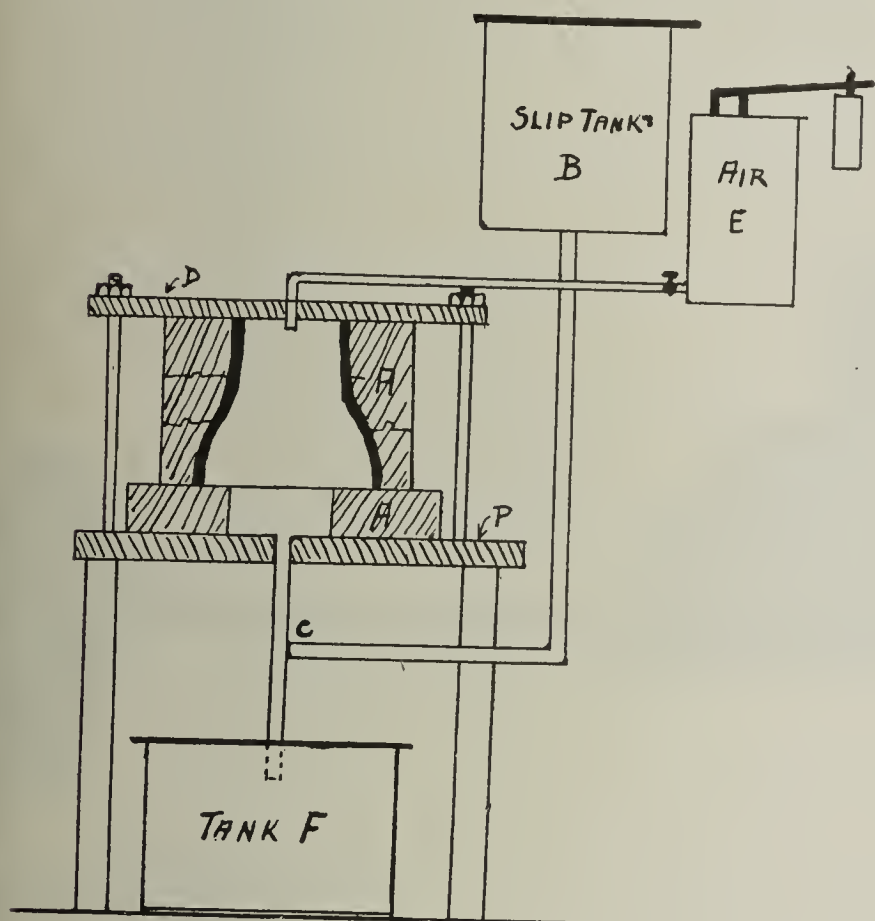
Green Effervescence on Roofing Tiles.—The roofing tiles are made of red burning clay, and the clay is free from lime. The heat employed for burning is cone 06. After the tiles are on the roof for some time they appear green. The trouble can be caused by too soft burning, and can be overcome by harder burning. In case the clay does not stand any higher temperature, it can be mixed with a clay which will stand more heat. Another remedy is to coat the tiles with a vitrifying slip, which will close up all the pores. Glazing the tiles will also prevent the green effervescence, but in many cases is too expensive. Another cause of the green is the presence of vanadium salts. These salts are soluble in water, and green will usually appear after a rain. Harder burning to vitrification is really the only satisfactory remedy. Sometimes a reducing atmosphere in the kiln alternating with oxidizing temperature will help to make the salts less soluble.—Tonind. Z., No. 137, 1909.

Decrease of German Porcelain Export.—The German porcelain industry has decreased to a very large extent exportation to the United States. Many of the German potteries work exclusively for export, and these factories are nearly completely shut down. The value of the export is nearly four million marks lower than last year. The most important part of the German export trade is the exportation of table ware, and, therefore, this branch of the pottery industry has suffered the most. A comparison of the following table will give an idea of the decrease. The figures are computed for the first seven months of each year:

1907 export of 18,935.8 tons in value of 31,244,000 marks
1908 export of 16,824.2 tons in value of 16,488,000 marks
1909 export of 13,890.1 tons in value of 13,735,000 marks

—Deut. Topf & Z. Z., No. 73, 1909.

Casting of Sanitary Ware.—It is quite possible, with a suitable arrangement, to cast large pieces such as used in the sanitary trade. The system which is used in Sevres for the casting of large pieces under pressure can be adopted for this work. The little sketch will give a good idea of the arrangement. The form A is placed on a good table, P, and



Slip Casting Apparatus.

is made tight by the use of some soft clay, which is put around the mold where the same lies on the table. The tank, B, contains the casting slip and is connected with the mold by a pipe arrangement. The valve, C, is a three-way one. When this valve is opened in such a way as to let the slip from the tank flow into the mold the slip will gradually rise in this mold until it is entirely full. The slip is run into the mold until the cast has gotten the right thickness. When the cast is ready the top, D, is screwed tight onto the mold, and the same is thereby made airtight. The valve from the air tank, E, is now opened, and the three-way valve, C, is changed so as to let the slip run into the tank, F. The air pressure is sufficient to hold the casted pieces in place and same can be removed from the mold in short time afterward.—Keramische Rundschau, No. 50, 1909.

The greatest good that can be done by city, county, state or nation, or the people therein, is not in instituting great charities and things to relieve want and suffering, but in developing a condition that will eliminate the need for charity.

It is claimed that in some of the counties in Kansas there is neither a pauper nor a man in jail, and if every county in the country can be made that way the need of charitable endowments will disappear. Meantime, the charitably disposed people who give enormous sums help out temporarily, even though they do not get at the real foundation of this trouble.

THOSE VAGRANT TENDENCIES.

THERE ARE SOME very interesting studies in some of the departures of architecture one witnesses these days, some that heretofore have been classified in these pages as vagrant tendencies. One specific instance that was illustrated and described at some length during the year was that of erecting brick buildings and facing them with a plaster made of cement and crushed tile. This, together with the trimmings, made a sort of mission effect that was rather ugly looking in the process of construction, but somewhat refreshing when completed. There are to be seen quite a number of examples of this kind, of brick walls, both new and old, being plastered over with cement preparations of one kind and another.

Then, there is another tendency that might be put in the same class; to use cement or concrete for the body of the structure and do the facing with brick and terra cotta. In some instances, in quite a number we might say, the concrete takes the place of steel construction and of the old brick walls. That is, instead of having a steel frame the framing and girders are made of reinforced concrete. In fact, the general structure is made of concrete and small bars of steel instead of heavy steel beams simply covered over and protected. Then the building is faced with brick, sometimes with one kind and sometimes with another; sometimes it embodies the use of quite a lot of terra cotta. Again, we find stone trimmings quite conspicuous with the brick face and reinforced concrete body.

One of the first points about this that will interest the average brick man is just what effect the general tendency to use reinforced concrete in this way may have on the brick business. There are many instances where concrete practically replaces the steel, and the amount of brick and terra cotta used is substantially the same as in erecting steel buildings, with the exception of the hollow block fireproofing on the inside. Much of this is not used, because of the idea among some that concrete itself is sufficiently proof against fire to stand without other protection. This is, of course, a mistaken idea if absolute fireproofing is the object, but let us not follow that argument just now, but rather the thought of just what influence this may have on the brick business.

It is not so hard on the face brick industry where concrete is used in lieu of steel, but it does curtail some of the use of hollow blocks for fireproofing. Therefore, we might argue that the injury or rather the supplanting has to do more with steel than with brick, and not bother anything more about it as a competitor so long as brick is used in facing. Sometimes, however, the walls that are built of concrete might otherwise be built of brick and then we have concrete taking the place of common building brick, which furnishes plenty of room for argument on the matter of cost. It is quite a common practice with the advocates of concrete to take face brick or at least some of the higher grade brick used in face work as a basis for figures in making the comparative cost of concrete construction with brick. So, where concrete replaces merely the common brick and the fillers and the finer brick is still used for facing, there is quite a difference. The common brick is the cheap item in brick work, consequently the saving in cost should be on the other side if the figuring is done right—should be in favor of brick instead of concrete on such structures as it is thought advisable to erect with solid walls in lieu of steel frames.

Written for THE CLAY-WORKER.

THE ADVANTAGES OF THE RUST CLAY FEEDER.

IN THIS DAY and age, where economy is an important factor, manufacturers turn their attention to labor saving devices. In the clayworking field many brickmakers stick to the old hand and thumb rules and are still operating their plants in the same fashion their forefathers were wont to do, using in many cases needless numbers of men which labor saving devices would decrease surprisingly and at the same time increase the quality of the ware. The Rust clay feeder and mixer is one of these labor saving devices that every up-to-date brickmaker should install. It is a labor saving money making device, and is used on many brick and tile plants, and has proven so effective and profitable that those using it would not do without it for many times its cost. By the use of the Rust clay feeder you can make more and better brick and tile than you can without it, and at a lower cost. More and better brick and tile can be made for the reason that it mixes the clay perfectly and tempers it for further use to which it is to be put, the feed being so regular that it does not vary ten bricks per hour.

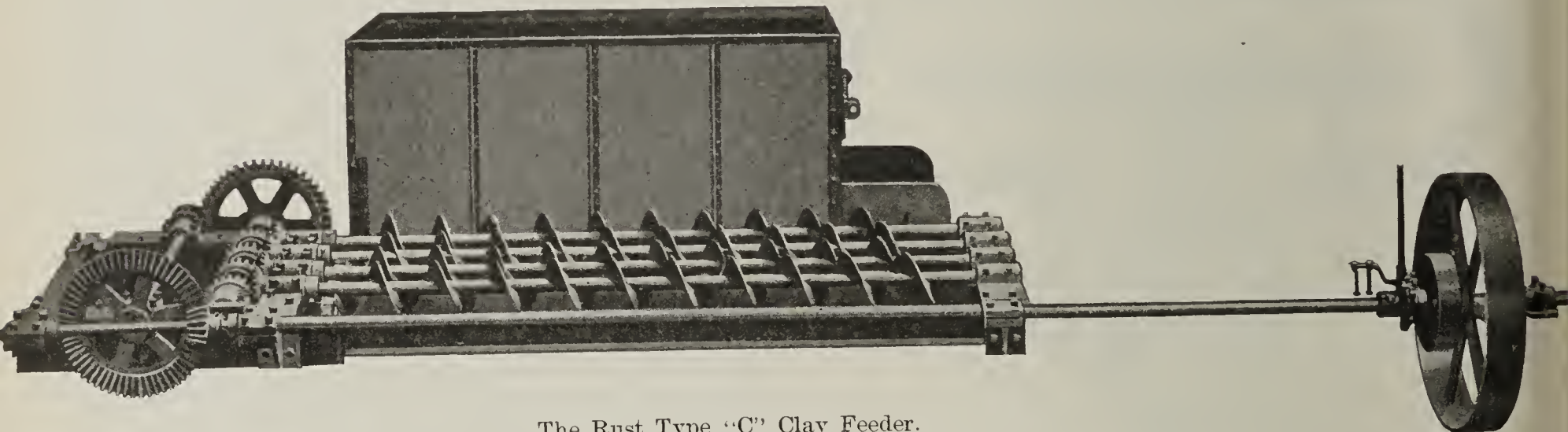
We are pleased to publish an illustration of the Type C Rust clay feeder, which was brought out in response to the demand for a better method for mixing and feeding clay in

machine requires no attention after the feed to the disintegrator has once been regulated. The spirals are nine inches in diameter. The diameter of the main driving pulley is forty inches. Revolutions per minute, seventy. The body is constructed of six-inch channel irons, and the hopper of heavy sheet iron, reinforced with angle iron at top. The spirals are made in one solid piece and rigidly fastened to the shaft by a patented process.

The Rust clay feeder dispenses with the men ordinarily used to feed the clay into the disintegrator. This saves the time of one to two men, who will draw from \$1.50 to \$4.00 per day, according to the local wage rate and amount of work. The average saving will be about \$2.25 per day. Counting 250 working days in the year, this means a saving of \$562.50 where one of these machines is used, a return of over 100 per cent. on the investment. Not bringing into account the great value in tempering clay, and the regular feeds on the machinery, thereby saving repair bills and the costly delays incident thereto.

This machine is constructed to feed directly into the disintegrator, but where it is desired to convey the clay off to one side, a cross spiral attachment may be used, which is attached to the end of machine and is operated by means of pulleys and bolt.

Every feeder and mixer has a capacity ranging from



The Rust Type "C" Clay Feeder.

brick and tile factories and all clayworking plants. It has been in successful operation for seven years.

The saving in labor, increase in production and improvement in the product which it effects, makes it a necessity to the up-to-date clayworker. The principal advantages are that it saves labor, tempers and feeds the clay properly, the feed may be regular or varied, in operation it needs little power, and is strong and durable.

By the use of the clay feeder, the clay is fed automatically into the disintegrator, the spirals drawing their supply evenly from all parts of the hopper, mixing the clay perfectly. There is no choking, thus eliminating the wear and tear on the disintegrator and making a vast improvement over the irregular feeding by hand. The perfectly regular feed given by this machine naturally tends to improve and increase the output of the plant. As the machine is back geared, the spirals run at a very low speed and little power is required. The machine is built of the very best material for the purpose required, and all parts are more than strong enough to resist any strain that may come upon them.

The operation of the machine is automatic. The construction of the hopper is such that the clay does not clog up, and feeds down on the spirals by its own weight. The

10,000 to 100,000 brick per day of ten hours. The feed is easily regulated at will by either raising or lowering the end feed gate, or by increasing or decreasing the speed of the drive pulley, and after the speed has once been regulated to feed any given amount of clay it will mix and feed in an even and steady stream, not varying ten bricks an hour. It requires only about two horse power to operate a full load and this power is more than saved because of the steady and even feed.

Each machine is fitted with a friction clutch pulley, and is thoroughly tested before being crated for shipment. By means of a cord attached to the clutch lever on feeder, the machine can be controlled at will, even though the operator be 100 feet or more from the feeder.

The feeder is built so strong that several carloads of clay can be dumped on top of it and it will operate automatically, needing no attention whatever.

The Rust clay feeders and mixers have an enviable reputation and are now being used on hundreds of plants. These machines are manufactured by the Marion Machine, Foundry and Supply Company, of Marion, Ind. If you are interested in labor saving devices, write them for their literature and more complete information on this subject.

IMPORTANCE OF LABOR-SAVING APPLIANCES.

BY J. D. PRATT, MENOMONIE, WIS.



WHEN, IN THE COURSE of human events, it becomes necessary for the brickmakers of this country to devise ways and means to curtail the running expenses of their plants, owing to the high price paid labor, railroad rates and close competition in the manufacture of clay products,

to say nothing of cement and sand-lime brick, one of the ways is to invent labor-saving devices.

You all know that the trucker is the autocrat of the brickyard; on him depends whether your machine will run or not, and he knows it. If the haul is short he will go like a Kansas cyclone, shaking the brick out of shape, in order to get back in time to the machine to sit down on his truck and throw mud at the men who are at work. (By the way, I discharge every man I see throwing anything about the yard). If the haul is long he will strike a gait something like molasses in January and call for an extra trucker. The machine will have to stop until he gets there or you put on the extra man, and as the distance from the machine increases the more men it will take. After a rain the run plank is slippery and they upset trucks or will not truck at all because it is too wet, although the sun may be shining bright overhead.

It is the same with the green brick wheelers at the kiln; we used seven truckers on the short run and as the distance increased would keep adding men until on the long run it would take fifteen.

So, I began to sit up and take notice; as we enlarged the plant it required more men to do the same amount of work that half as many would do close in. I began to study on this cable system, and after the company had looked over our rough drawings they told us to go ahead. But some had doubts about it working. It is here working ten hours a day and has come to stay.

Our system consists of two half-inch cables 20 inches apart running parallel with the ends of the racks, with two sets of three-eighths-inch cables running at right angles with it into the alley of the racks. We use a patented gravity carrier for turning the angles; the side cables are portable and while the rack men are filling one alley, one man and a boy set up the extra cable in the alley to be filled next throw. Two men look after the conveyer and do all the repair work on the yard, as it only requires about half an hour to set up the cable and line it for two or three hundred feet. But nothing stops while making the change. The power for driving the side cables is taken from the lower main cable by friction, which consists of running the lower cable under the drive sheaves of the main, requiring no shaft except two short ones with bevel gear. The brick are dumped on pallets on an automatic dump table, which delivers them on the main line, and they are not handled again until the unloader takes them from the side line and puts them in the racks at any distance from the machine. The brick are just as square as when they left the mold, for there is no jar or vibration to get them out of shape. There are no trucks or truckers, no expensive run plank, only the men at the machine making brick and the man way down in the racks taking them off from the cable. Just like clock work.

We take the dry brick from the racks to the kilns by the same system. Our machine runs sixteen and one-half molds per minute, and we make from 56,000 to 58,000 brick per day. We average 59,000 per day through the season. The brick are more perfect than any other way of handling. We use steel rack cars in the dryer, but the brick are not as perfect as those which have gone over the cable. You can figure how much you can save. If you can only do away with three

or four men it will save you from \$5 to \$7 per day, not counting brick damaged by running them out on trucks. It looks good to a brickmaker to see a line of pallets full of nice, square brick about eight feet apart and 600 or 800 feet long moving along with no one in sight, for after the man who looks after it gets used to the work it requires very little attention. It is easily installed, for it makes no difference where your machine is located, at the end or in the center of the yard, for you can reverse the cable by simply moving a lever.

We built this all ourselves with the men who work on the yard, and got our castings at the local machine shops. It requires about one horse power to run it. We are using about 8,000 feet of wire rope. I have been asked by a number of brickmakers to explain this system and I take this opportunity to do so—I am not trying to sell anything.

AS SEEN BY A PARAGRAPHER.

The study of clay is a mighty interesting subject, and we are not surprised to find the newspaper paragrapher occasionally pouncing upon some lively interest connected therewith. But the paragrapher who wrote the following was probably straining a point or was a little deficient in comprehension:

"Some folks," said a clay dealer, "seem to think that clay is only used for bricks. Clay, as a matter of fact, enters into our food, our clothes, our carpets and our wall papers.

"It enters into our food in two ways; first, in the form of teeth, artificial ivories being made of white Cornish clay, and, second, in the form of bleach, for clay is the bleach employed to whiten flour.

"Clay is used to stiffen certain dress goods of a cheap type, and it enters into our wall papers and carpets, especially blue wall papers and carpets, for ultramarine dye is made of clay. All stationery paper contains clay, too.

"This clay all comes from Forney in Cornwall. It is worth \$5 a ton. We import 100,000 tons a year."

OUR IMPORT AND EXPORT TRADE.

Our imports of clay products during the calendar year 1909 amount to a little over ten and a half million dollars, the exact figures being \$10,542,878. The big item, of course, was chinaware and pottery of various kinds. The imports were slightly below those of 1908 and about \$1,750,000 below the imports of 1907, which was due, no doubt, in a large measure to dull trade conditions both at home and abroad. Our exports of clay products during the same period amounted to \$2,013,558. The biggest single item in our exports was earthenware and stoneware, which amounted to a little over \$1,750,000. Then came building brick and chinaware and various other lines of clay products. The total exports are below the trade in 1907 and in 1908 both. Back in 1907 we exported over a million dollars' worth of earthenware and chinaware alone, and even in 1908 we did somewhat better than last year. It is likely, however, that some difference in figures is made by the trade with our non-contiguous territory being now tabulated separately. For example, there is a chinaware trade with Porto Rico which amounted to \$73,926 last year, and this trade, as well as other trade with non-contiguous territory of the United States, is not now accounted for in the general imports and exports, but just when the figures were separated we are not certain. We are evidently making pretty fair progress in serving the nearby countries with clay products, everything considered, and also taking care of more of the domestic trade in chinaware better than formerly, even though the imports do continue rather large.

The new year is starting off like it means for business to ride in the front ranks, and though some bad business methods may lose their scalps to the reform crusaders, good business will prevail and prosperity smile.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

CONVENTION ECHOES.

Treasurer Sibley Adds His Mead of Praise.

MY DEAR THEO—I have just opened the February CLAY-WORKER, with the report of the Pittsburg convention, and it is the "best ever," and reflects great credit upon you and your entire corps. With kindest regards to you all, I am,

Yours sincerely,

Birmingham, Ala.

JOHN W. SIBLEY.

Ft. Pitt Hotel an Ideal Place for Convention.

DEAR MR. RANDALL—I remained at the convention until Thursday, but as I had considerable other business in and around Pittsburg I had to give considerable time to same.

As far as the convention was concerned, it is the writer's opinion that it was one of the best we have ever had. Everything so far as conveniences were concerned were the very best, and the Ft. Pitt Hotel is certainly an ideal place to hold a convention. One of the good features of this hostelry is that it closes up certain departments promptly at 11:45 p. m. Very truly yours,

Anderson, Ind.

W. N. DURBIN, Secretary,
Anderson Foundry and Machine Works.

Pittsburg Meeting Outclassed Them All.

DEAR MR. RANDALL—I was obliged to leave Pittsburg at the close of the paving brick manufacturers' meetings, therefore did not know what I had missed until I read the February CLAY-WORKER, and I want to say to you as a friend and as a member of the National Association that you are entitled to all sorts of credit for the program furnished. Since the meeting at Atlanta, Ga., I have tried to keep in very close touch with all that you and your Association have done, and my opinion is that the Pittsburg meeting far outclassed any of your other endeavors.

With kindest regards, and hoping you may have many more prosperous meetings, I am,

Olean, N. Y.

Very sincerely yours,

HENRY HASBROUCK.

The Opinions of an Absentee.

MY DEAR RANDALL—I have read the February CLAY-WORKER with unusual interest. The convention report contains much food for reflection. The papers were all unusually instructive and the discussions very interesting. I am one of the unfortunate absentees, and so am seeing through the glasses of THE CLAY-WORKER. I judge that the paper on publicity by Mr. Frothingham awakened the greatest enthusiasm. I have read it carefully and, while there is a lot of meat in it, I wonder how in the world the convention swallowed unflinchingly his bald boosting of magazines, in which he makes the assertion that they censor their advertising pages so rigorously that they will not admit any fakes. I have faith in magazine advertising rationally conducted, but if my judgment is worth anything there is none of them but will carry fake or any other advertising to get the money. The only real discriminating people when it comes to advertising

are the high grade trade papers. Do you really believe that any magazine ever refused any advertising that had the money behind it and was fit to be printed? Yours truly,

J. C. T.

Toastmaster McCormick Well Pleased With Convention Report.

DEAR MR. RANDALL—I wish to thank you for the copies of THE CLAY-WORKER for February, which contains such an excellent account of the Pittsburg convention. In fact, it includes practically the entire issue, and I want to say I have never seen a more complete report of anything than this report of yours. It is simply superb, and you are the subject of heartiest congratulations.

It is not difficult to understand the success of your convention, after having met you personally and after having witnessed your ability to make things move.

With good wishes and kindest regards to Mrs. Randall and your daughter, I am,

Sincerely yours,

S. B. MCCORMICK, Chancellor,

Pittsburg, Pa.

University of Pittsburg.

Must Have The Clay-Worker.

PUBLISHERS CLAY-WORKER—As it is past time for the February CLAY-WORKER, and I have not received mine, I would be glad if you would send me a copy, as a man in the clay business can not get along without THE CLAY-WORKER once he gets in the habit of reading it. Yours very truly;

C. P. BOYD.

Can Not Get Along Without The Clay-Worker.

PUBLISHERS CLAY-WORKER—Inclosed find check for one year's subscription to THE CLAY-WORKER. We could not do without it as long as we are in the brick business. Our business is fairly good for this time of the year. We have no recent photograph of our plant, but will get one sometime soon and send it to you with a brief outline of our works. Wishing you a prosperous year, we remain,

Very truly yours,

Butler, Pa.

SCHULL & BADGER BRICK COMPANY.

Burning Silica Brick.

Editor THE CLAY-WORKER:

I notice on page 45, under the heading, "Foreign Scrapings," in January, 1910, THE CLAY-WORKER, an extract from Tonind. Zeitung, No. 120, 1909, as follows:

"The Burning of Silica Brick—The best kiln for the burning of silica brick is the round down-draft kiln. The kiln should not be too big, as otherwise the results are too variant and the brick will not be burned hard enough. In setting a kiln the lower courses should be set with regular fire brick, and also the softest parts in the kiln should be set with fire brick. The regular temperature for burning is between cone 14 and 15, and during the last year many factories burned between 12 and 13.

"It takes about ten hours to dry and water smoke the kiln and then in five or six hours the full firing period should be obtained.

"In twelve hours of full firing the burning is finished. This system of burning will vary some on account of the different nature of materials used, but as a general rule it can be relied upon as being the best way to obtain good results."

In reply, I agree that the down-draft kiln is the best for burning silica brick and that a small kiln will give better results than a large one.

I also agree that regular fire brick should be set in the lower courses, as the silica brick would probably be crushed from the weight of the brick above.

Silica brick, being composed of nearly all silica (ground silica rock), are very weak in their structure and of low

tensile strength, while regular fire brick are stronger. As to setting fire brick in the softest parts in the kiln, I will say that a down-draft kiln built on correct principles of heat distribution should not have any soft parts, not even in the lower courses, and fire brick should not be set in the lower courses, because the silica brick would burn too soft and because, as mentioned above, they are too weak to bear much weight. We have no trouble in America to burn to cone 15 to the bottom of the kilns with a sufficient number of fire holes, but we can not obtain these results in so short a time (twenty-eight hours) as our esteemed German friend states. He must surely be mistaken or ignorant of the length of time it requires for burning such refractory clay ware as silica brick. It's true the nature of the material, the porous open body, permits rapid water smoking and heating up, but to fuse the mass together, to make it strong enough to stand transportation, it requires a white heat for at least forty-eight to sixty hours or more. Water smoking any kind of clay in any kind of kiln in ten hours, heat up the kiln in five or six hours and finish in twelve hours, is going some and practically impossible. I know it never has been accomplished in this country.

The Americans are a hustling and moving nation, they are very fast in many things, for instance: In Chicago they put the hogs in one end of a machine and the sausages come out at the other end, but in burning clay we go much slower. We have very good down-draft kilns in America, the best that practical experience can design, but we have no such rapid firing kilns as claimed by Germany, and before we believe that they have, we have to be shown.

AN OLD BURNER.

A PLEA FOR UP-DRAFT KILNS.

Editor THE CLAY-WORKER:

DEAR SIR—I have been reading in THE CLAY-WORKER the report of the last N. B. M. A. meeting, and from the report here given you must have all had a good time. I have read with a great deal of interest the papers on the different methods of burning and was especially interested in Mr. Vater's paper on "Producer Gas as a Fuel for Burning Clay Ware." Also Mr. Vogt's paper in which he says you placed him in a position which compelled him to unhitch before he could go ahead. Mr. Vogt says he does not know of any real economy or utility of an open top kiln, but that he has spent years in perfecting the designs for a down-draft kiln that can be constructed as cheap as an open top kiln. May not this last assertion be the very reason why Mr. Vogt views the matter as he does? Mr. Vogt also makes the assertion that when once you see his plans you will not be content to struggle on with your up-draft kilns? If he is aware of this, it would be a wise plan for him to get over the country as fast as possible, show his plans and sell them to every brickmaker. Mr. Vogt admits there may be some economy and utility in the up-draft kiln where gas or oil are used as a fuel, but even then the down-draft kiln is better, and attributes whatever economy there is in the regularity of the moving heat, and which he says can be nicely regulated by a careful burner. Is not this the key to success with every kind of kiln?

Brother Vogt seems to infer that the down-draft kiln does not need a careful burner. Now the writer has no interest in any kiln whatever, neither up-draft, down-draft, continuous or sight draft, but has operated all kinds except the latter, and from what I have experienced with them I think Brother Vogt would have considerable trouble in convincing some of our good brothers around Philadelphia, Baltimore and various other sections of the country that they ought to adopt the down-draft kiln for burning their product.

That the down-draft kiln does burn good brick I will not deny. I have burned as good brick in down-draft kilns as any could or as any I have seen burned in them. On the

other hand, I have burned just as good brick in up-draft kilns as an expert down-draft burner could and did burn right on the same plant, and I don't see how anyone could expect to erect a lot of down-draft kilns to take care of the output of a large plant as cheaply as they could erect good up-draft kilns. I don't think any man would set up such a claim and be able to sustain it.

If one must put up something outside of a good up-draft kiln for burning common brick, why not put in a good continuous kiln? This is the cheapest kiln in the end, but I know that the cost is almost prohibitive with many brickmakers. But, when one can stand the pressure of first cost, it is the most economical way to burn common brick that I know of. The brickmakers of our country owe a great deal to the late P. L. Youngren along this line, the writer having been intimately associated with him in the city of Baltimore some fourteen years ago, found him to be a well posted man on this style of kiln. Now, Brother Vogt, I have no fight with the down-draft kiln, either your's or any other, but lets give the other boys a chance, too. Very truly yours,

ELIAS PETTS.

CONNEAUT SHOVEL COMPANY'S REMARKABLE ACHIEVEMENT.

On the night of December 23, 1909, fire reduced the old plant of the Conneaut Shovel Company, Conneaut, Ohio, to a heap of ashes and tangled iron and machinery. Thirteen working days after starting rebuilding a brick structure covering approximately 42,200 square feet was up and enclosed and the fires were lighted under the boiler. The construction of the building included the laying of the entire foundation. This is a world's record for construction of a plant from the laying of the foundation up. Moreover, the reconstruction involved the drafting of plans by Manager Benton according to his own ideas of a complete shovel plant and assembling of materials. The construction was done by day's work under Manager Benton's direction instead of by contract.

This remarkable achievement must be credited to Manager Benton's executive ability, supplemented by the skill and energy of his lieutenants—Fred L. Horton, who had charge of the carpenters; H. F. Lewis, who captained the masons, and M. H. Martin, foreman, who was in command of the old shop force, which to a man took hold and labored zealously.

But the directing heads would have failed without good help, for from sixty to eighty of the best men obtainable were at work all the time. These men were the survivors after a process of elimination had discarded about 100 others.

In order to show the spirit which animated the shop force of shovel makers, who for the time being became builders, the fact may be cited that some of them offered to give free service to the company during the period of reconstruction of the plant. Of course, this offer was not accepted, but it evinced the spirit of community interest and sentiments of loyalty not often encountered in this age of armed truces between employes and employers.

The company's loss by fire was \$50,000, only \$16,000 of which was covered by insurance. Yet such was its belief in the merits of its output and such the good will of its business that the plant was rebuilt with all possible speed. This action was more convincing as to the company's faith in its goods than any oral arguments could be, and it proved to have a positive commercial value, since by salvage and by disposing of damaged stock before it became unsalable and by orders received as soon as the decision to rebuild was known to the trade, the company was put on a level footing with its losses.

The company now has orders ahead for 1,000 dozen shovels, with the understanding that the orders are to be filled at the company's convenience. No better evidence of the quality

of the goods and of the trade's confidence in the company could be desired.

The plant is undoubtedly the most conveniently arranged and the best equipped of any shovel plant in the United States.

The Conneaut Shovel Company makes a special line of shovels for brick yards, mining and handling ore, for concrete, sand, shale, coal, etc. It makes 125 different sizes and styles of shovels. The plant's normal capacity is 150 dozen shovels a day without extra effort, and its full complement of men is about sixty. For the most part the employes are skilled workmen.

The principal reason for the company's phenomenal success is found in the fact that it has gone back to first principles and has adopted the old Swedish method of hand work so far as possible. The best material is bought, the work is done as perfectly as skill can do it, and every implement is tested before it is sent out.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.

EVERY day brightens the prospects for an unusually active season in the brick business in Toledo and vicinity. Figuring on new work came a little later than ordinary, but every day witnesses the closing of contracts which are sure to furnish a market for large quantities of building brick. A \$300,000 addition to the power house of the Toledo Railways and Light Company, a handsome five-story business block for Tietke Bros., a \$1,000,000 sugar beet plant, a \$100,000 building for the T. W. Warner Company, a \$125,000 building for the Kinsey Manufacturing Company, and a large plant for the Atwood-Castle Company, are among the larger brick consuming contracts closed thus far. It is estimated that new building now assured amounts to more than \$4,000,000, and there are still a larger number of prospects in an embryo state. Industrial and commercial work promises to establish a new record this summer, nor is the question of residence building being neglected. The permits last week for new buildings, all of which were residence jobs, exceeded \$40,000, and there is every evidence that this branch of the building trade will not be neglected for the larger and more important work.

This prospect for brick demand is beginning to open the eyes of the local manufacturers and dealers to the fact that their stocks are not abnormally large and that if the demand is to be met promptly some tall hustling must be done, and arrangements are being made to take care of the increased demand as rapidly as possible. Most of the local plants closed down a portion of the winter, but the time was improved by putting plants in the best possible condition, so that when operations do begin there will be no delay. Prices are holding very firm and there is reason to believe that building brick will cost more this year than last.

Public work, such as street paving, sewerage and drainage, will also receive plenty of attention, and it would not be surprising to see a large gain in this class of business this season over last year. Money is becoming more plentiful and with this changed condition has come a demand for paving in the residence districts and other work which is naturally impeded when times are hard. Paving block industries and sewer pipe manufacturers are very sanguine and predict one of the best years in the history of the business.

Gerhart H. Kinker, one of the pioneer brick masons of Toledo, passed away at his home in the south end of the city recently. He was born in Germany and came to Toledo fifty-eight years ago. He built the piers for the first grain elevators in his part of the city and had been connected with the erection of many of the more important brick structures put up since.

A contract which will furnish a market for a nice lot of

brick at Sandusky, Ohio, will be that of the new school building for St. Mary's parish, which will be one of the finest in that section and will cost in the neighborhood of \$200,000. It is planned to have the structure ready for dedication early in the summer.

Petitions have been filed by property owners at Defiance, Ohio, asking for the paving of East Second street and Ottawa avenue. Lower Perry street and West Fifth street will also be paved early in the season. Prospects point to a large amount of municipal work this year.

The board of trade at Findlay, Ohio, is fighting to retain the plant of the United States Porcelain Company for that city. The board claims that the company was given a bonus of \$2,600 to locate in Findlay and to remain in that city for a period of ten years, and that it is in possession of a contract containing those provisions. After remaining in Findlay for five years the concern undertook to remove the plant to New Cumberland, W. Va., but was promptly met by a temporary injunction, issued by the local courts at the instigation of the board. It is alleged that the company undertook to evade the contract by reincorporating under the laws of West Virginia. Upon further hearing Judge Duncan refused to dissolve the restraining order. Last Saturday a petition was filed in the local courts by W. H. Williams, former general manager, in which he alleges that the company is indebted to him in the sum of \$4,140 back salary, due under a contract with the original corporation and asking for an accounting of the company's affairs. The company denies all responsibility for the acts of its predecessor, but in the meantime the injunction stands, preventing the proposed removal from the city.

The little village of Sylvania is becoming citified and will let contracts on March 15 for the paving with vitrified brick of Ohio avenue. About three blocks will be included in the award. The village is the home of the Toledo & Western car shops.

T. O. D.

RUNNING A TRADE PAPER.

In a recent edition of the Music Trades, John C. Fruend, the editor, tells about running a trade paper, and therein strikes a cord which will find a ready response in the mind of many a trade paper editor. For instance, when he points out the relation of the advertising he reviews in some detail the reasons for the large advertiser feeling that the trade paper should be run more in his interest than in some other fellows, who is practically doing no advertising at all, or probably not carrying any great amount of advertising. In other words, the advertiser gets to regard the trade paper sometimes as not merely an aid to his business, but as a servant. Where Mr. Fruend strikes a responsive cord is in pointing out how this attitude on the part of the advertiser is wrong, both from an ethical standpoint and as a business proposition, which he does in the following manner:

"In the first place, it should appeal to men of intelligence that the moment a paper deviates from the straight path in the way of presenting news matter, the moment it suppresses news, fakes news or fixes news, it must begin to lose circulation, and inasmuch as the advertiser is practically after circulation all the time, where is his gain if the papers in which he advertises, instead of having a large and growing circulation among readers who have confidence in them, have only a restricted circulation among people who never know whether what they read is to be believed or not? And if this will apply to the daily press, will it not apply with vastly increased force to the industrial or trade press?"

"If a trade paper is so under the influence of its advertisers that it never dares print anything except matter of the most colorless character, what will be the result? A large force for good will be reduced to a condition of uselessness and imbecility, for the plain reason that it will not take the readers of such a paper very long to find out that it has no soul of its own; that not alone are its statements to be received with a large amount of reserve, but

that, furthermore, it can not be relied upon to give the very information which the readers expect—just as much as the man with the daily paper expects to get the news when he takes it up, and why should a man be eager to get in his daily paper every rumor of impending changes or important happenings in the political, financial or general business world, and yet deny the right of the trade paper editor to print what he will brand as 'mere trade gossip' when it affects his interest, which so-called 'gossip' is in the majority of cases founded on fact?"

Another place where we feel like joining in and saying "Amen" is where he gives us a golden rule for business men, as follows:

"If anything happens of importance, give the news to your trade press. Then it will be published as you wish it published, and it should be published, and not, perhaps, as your competitor wishes it published."

THE NO. 4½ CHAMPION STEEL CRUSHER.

For a number of years past Champion steel rock crushers have been very popular with brickmakers and clayworkers. These machines are used in crushing fire clay, shale, brick



The Champion Steel Crusher.

bats or any kind of hard material. They will break this material at a minimum cost to almost any size desired from three inches down to the dimensions of a hickory nut and smaller, and as the product comes from the crusher it is ready for a pan.

The No. 4½ Champion steel rock crusher, shown in the accompanying illustration, contains features of advantage that will commend it to every brickmaker and clayworker throughout the country. It is constructed almost entirely of steel and is of tremendous strength in comparison to its size. The feeding mouth is low. This means that a large saving is effected in delivering material into the crusher.

The No. 4½ Champion will turn out easily from 150 to 200 tons of crushed material per day of ten hours. Its weight is 12,500 pounds, and, in common with all Champion crushers, it can be furnished either stationary, as shown in the illustration, or with regular mountings, and with elevator and screen attachments as may be desired.

In the No. 4½ Champion crusher the power is exerted upon the moving jaw through the rolling action of the double cam shaft, anti-friction roller, tumbler and toggle. The cam shaft

is elliptical in shape, and every revolution of the flywheels means two movements of the moving jaw. As friction has been reduced in a Champion crusher by the reduction of the speed, the possibilities of wear have been reduced proportionately.

Catalogue and full information concerning the No. 4½ Champion crusher can be obtained by addressing The Good Roads Machinery Company, Kennett Square, Pa.

BRICK NEWS FROM DIXIE.

BRICK construction is very good this month in Memphis, Nashville and the smaller cities of Tennessee. Trade is active in the towns of Mississippi, Arkansas, Louisiana and Alabama.

The Humboldt, Tenn., brick and tile plant owned by L. E. Rooks will be removed in the near future from Humboldt, Tenn., to Pine Bluff, Ark. The plant was organized three years ago by a stock company and the stock sold about a year ago to Mr. Rooks.

The Corinth Brick Works, at Corinth, Miss., is running right along and has about 400,000 brick on hand. John F. Osborne is president of the company and Martin Curry superintendent.

The Reynolds Brick and Tile Company, of Greenville, Miss., has increased its capital stock to \$50,000.

The Seguin Vitrified and Face Brick Company, of Seguin, Texas, has increased its capital stock from \$60,000 to \$75,000 and will install additional electrically driven machinery to manufacture paving brick.

W. G. Bush & Co., brick manufacturers of Nashville, Tenn., are furnishing the gray brick being used in building Major C. T. Cheek's new residence on West End.

The Fulcher Brick Company, at Nashville, Tenn., has just completed a very fine barn for Mrs. Denedy. They have several large contracts on hand and look forward to a very prosperous season.

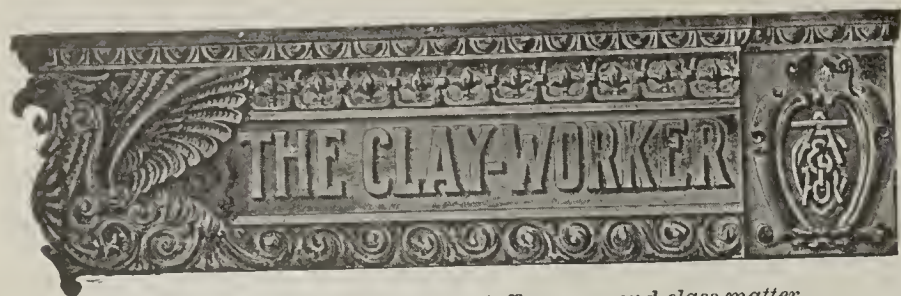
The Chattanooga manufacturers are now keeping on exhibit in their new building opposite the Reid House, the Chattanooga Manufacturers' Association building, permanent exhibits of their different products. Among these is a good exhibit from the Chattanooga Sewer Pipe and Fire Brick Company, and this is located in the northwest corner of the first floor of the building. The central piece is a section of terra cotta fireproofing floor, and clearly shows how the hollow blocks are set to form a flat arch and protect from fire the girders of steel frame buildings. This sample floor is supported by joints of sewer pipe, while in front and underneath are shown a number of special sewer pipe fittings and fire brick shapes. The side walls are of hollow block and partition tile, as this material is now largely used in the construction of all classes of buildings. Samples of farm drain pipe, flue linings, chimney tops, wall coping, boiler tile, grate backs, timbles and other clay products manufactured by this company are also on exhibition.

The brick plant of W. A. Settle, at Clarksville, Tenn., was visited by THE CLAY-WORKER's representative. Mr. Settle, who has been in the brick manufacturing business for twenty-one years, reports a very favorable outlook over the South. He now has in his yard about 800,000 brick. Among other contracts, he is filling one for the Louisville & Nashville railroad roundhouse at Paris, Tenn.

DIXIE.

WILL PURINGTON BACK AT GALESBURG.

Will S. Purington, who has been sojourning during the winter at St. Petersburg, Florida, recently surprised his associates at Galesburg, Ill., by returning home unexpectedly. He had intended to remain South until April, but was so much improved he could not remain South any longer, and so "hiked" back without notice, and is again "on the job," not exactly as good as new, but very much improved by his long rest.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIII.

MARCH, 1910.

No. 3.

CURRENT COMMENT.

One good way to have more friends as you go through life is to be more friendly yourself.

* * *

For a short period of time, at least, the soda fountains have got the moving picture shows beaten to a frazzle.

* * *

One good way to minimize the cost of transportation is to work your home trade hard and not have to ship out so much of your product.

* * *

If there is paving to be done in your town this spring, get into the game and talk brick—and it's not a bad idea to talk brick, anyhow.

* * *

The absolutely perfect business man has never yet been born, and if he ever is, there will be hundreds of others ready to pick flaws in him and call him a fanatic.

* * *

When a man wants to build a house of hollow block he should find a better material in the clay product than in the cement, and it is up to the clay block people to inform the public about this matter.

* * *

In many parts of the country the brick trade is starting early this year and there is some pretty tall hustling to supply this early spring demand. Here's hoping that it keeps up at this gait all through the summer.

* * *

Are the investigators really trying to warm up the cold storage business or simply making a show to appease the clamor of the impatient public because of the high price of foodstuff? If half the stories are true about the amount of money the farmer is getting for all his products, here at least is one class of men who have no cause to balk at the cost of a

good brick house, even though they have to pay bricklayers fancy prices to put it up, because bricklayers and everybody else are paying fancy prices for the product of the farm.

* * *

There is one thing at least that can be said in favor of those Easter eggs, if they are not right fresh they are at least much younger than the jokes about the Easter bonnet.

* * *

Now that we have "fadeless" mortar colors, if some one will just invent a brick face that won't be affected by dust and smoke after it is put in the wall, we may all be happy—except the painters.

* * *

The greatest man in the clayworking business is not necessarily the one who finds the best clay bank and works it, but the one who is able to take whatever material is at hand and make the best product out of it.

* * *

It looks like a good spring crop of street paving this year, and we hope that everywhere brick men will not only be on the job, but will get their share of the work. For, the more they get this year the easier it will be to get more next year.

* * *

During the last day of its session the Kentucky state senate passed a bill making it unlawful to tip waiters. It would probably take two or three drinks of Kentucky's famous product to brace the average citizen up to the point of carrying out the provisions of that law.

* * *

There is a new uniform demurrage code going into effect in many states beginning the first of April that will help some. It is not all that the shippers hoped for, being a sort of compromise measure, but it is better than most of the old codes and if adopted by all the states will have the effect of uniformity, and carries with it a reciprocal clause that may help out some.

AN OBJECT LESSON IN FIRE PREVENTION.

There is a pretty good object lesson comes to us in the consular reports on the advantages of building with brick and other fire-resisting material in preference to lumber and combustibles, as is too often the practice in our American cities. The report is that of Consul Albert Halstead, of Birmingham, England, who says that in 1909 there were 786 fire alarms, of which 107 were for chimneys on fire, 92 false alarms, 552 slight and 37 serious. What is called a serious fire in Birmingham is one where the loss is one-sixth of the property involved. The total loss from fire in Birmingham during 1909 was \$215,333. It has a population of 543,000, six fire engines, one fire escape and water tower, three fire escapes and chemical engines and a number of smaller escapes. Take the fire loss and the equipment maintained and compare it to the fire loss in a city of the United States of equal size and also compare the cost of the fire apparatus and its maintenance in such a city and the object lesson is plain. The answer is, build with brick.

KEEP THE ARCHITECTS INFORMED.

There is nothing that will help those brick manufacturers who specialize in fancy and other high grade face brick so much as to keep all their different products conspicuously before the minds of the architects who have in hand work likely to involve the use of such brick, and the same, of course, applies to terra cotta and other clay products for use in such structures that call for architects. The architects that are worth while are not only wide awake, but they are seeking all the time for different effects and new things in face and color for improved ideas in products that will

help in fireproofing or in any other of the problems that are confronting the architects from time to time. A good architect is also a busy man, and, while you may have placed before him at some time a full line of products, do not take it for granted that he is going to keep this in mind all the time. There are lots of other people offering things to the architect. There are many other things before his mind besides your own product. So, if you get the attention your offerings deserve, you must see that they are kept before the eyes of the architects more or less continuously, not offensively or intrudingly, but invitingly. Do not rest secure in your imagination on the fact that you sent samples of brick to some architect last year or year before, or sent a pamphlet neatly illustrating the full line, but keep after them again this season and every other season.

INFLUENCE OF ATTRACTIVE DISPLAYS.

There are many ways by which a brick manufacturer can keep his products before architects and one should not become wedded to any certain way, but use various methods as the occasion seems to suggest. One excellent idea is to have such architects as you can reach or as come your way during the season visit with you and show them not merely over the plant, but your line of products from time to time. Another way is to be at architectural gatherings and all other places where good architects are likely to congregate and at big expositions with proper displays. One of the most effective jobs of placing before the architects building material was done by the yellow pine manufacturers at the great world's fair. There are architects who retain still a favorable impression of yellow pine and have used much of it since, because of what they saw there. The same idea in different form can be carried out by the clay products people and there are many other plans. Some may involve having card slips for enclosing in your mail illustrating in color the different offerings. Say one at a time, and there is simply no end to the methods you may adopt to keep the architects informed. The point is to keep at it. Be persistent and stay with it. Do not be content to make a big spread in catalogues and sample distribution at some one time and let it go at that for a number of years, because we live in a world in which things of last year are likely to be forgotten in the rush of the present season and you must be Johnny-on-the-Spot at the time or some other fellow will get before the architect and prospective builder with something else, and the first thing you know you are a back number. Nor is it crankiness on the part of the architect, nor short sightedness. It is enterprise on the part of the other fellows. Keep in the game yourself and keep the architect informed.

AMBITION SHOULD BE TEMPERED WITH JUDGMENT.

It is not the intention to urge that manufacturers should strive against increasing their output or building their business larger from time to time. Every man has an ambition to grow bigger in a business way, and it is a commendable ambition, too, but there has in times past been too much haste along this line and too much giving away to the idea that success lies only along the path of enlarged production. It puts it too much like letting the success depend on the production, whereas the enlarged business or output should depend on the success of the institution. In other words, the success should come first and then the business be enlarged as the trade and territory justifies or can be made to justify by industrious cultivation. There are just as many opportunities to attain success in this way today, too, as there ever was, and instead of the small manufacturer being discouraged because he is in business in a small way, there are times when he should be happy over this fact, because when business is rightly handled the greatest satisfaction one

can get out of it is in gradually, but steadily and successfully, building up from a small institution to a larger one.

GETTING THE PUBLICITY SPIRIT.

One of the main things we need to secure the sinews of war for the campaign of advertising and extending the use of brick is plenty of the right spirit. If we get enough of the right spirit, properly enthused about it, the details of carrying out the work can be handled very easily and will naturally develop themselves. There are several ways for us to accumulate or arouse this spirit. One way has been demonstrated. That is by gathering at meetings and having the subject properly discussed and its importance thoroughly impressed upon the assembled body. Another way is to study what has been done in other lines, and then there remains a certain other way that may be overlooked, and that is by beginning it at the place where charity is said to begin, and chickens come to roost—right at home.

Every man in the brick business has right at his own home and in his own business plenty of opportunities to advertise and increase the use of brick in his own territory and at the same time to build up within himself such a spirit of enthusiasm for publicity that will lend strength to the country-wide movement for this purpose. What is meant specifically here now is not the matter of advertising in the local paper, though that is of great importance, but really the matter of making a home display of his own product in such a manner that will attract attention, create comment and encourage sales.

This is getting into a subject that might seem a little threadbare, but it is not. We have merely scratched the surface and started the campaign. We should see other things around the average brick manufacturer's office than samples of clay, pieces of broken brick that have been tested and a few samples out of this kiln and that kiln scattered about indiscriminately. These are really things of study that belong in the laboratory. What should be in front and on show all the time for everybody is an excellent display of everything the manufacturer has to offer in the way of clay products. There are hundreds and possibly thousands of different ways in which these things can be arranged. Some made into interior displays, some into exterior shows, some may line their office walls in an attractive manner, others may go out and build a summer-like pavilion, using various kinds of clay products; some might do one way and some another, depending partly on the product one is manufacturing, partly on the location and partly on the taste and inclination of the manufacturer.

There is practically no limit to the opportunities for beautifying the surroundings of a brick manufacturer's office and grounds and at the same time advertising thereby his products to his community. How many are putting to good use these opportunities? Hardly any in the full sense, we might say. Some have storerooms in which are standing various samples of their products that the visitor must walk by coming into the office, and others have very tasty displays of one kind and another, but few of them are really as wide awake and alive as they should be. We are too content to rest on the accomplishment of some one good effect or other and forget that these things must be kept alive and that there is no end to chances to display them in different form.

We would have but little respect for a big store that simply put some stuff in its show windows and left it stand all year around and year after year. We expect changes in up-to-date show windows to be made every week or every few days, and in some places it is every day. It is not necessary for so many changes in the brick business, but the idea is a good one that can be applied in a modified form to the home displays of brick and other clay products. And in making use of it one can hardly avoid generating a whole lot of spirit that will lead to even wider and bigger publicity of

one's products. If the work is carried out right at home it will beget a pride in the business not felt heretofore, will stimulate local advertising and create more expansive ideas, both in a business way and in advertising.

TRADE LITERATURE.

THE LATEST IMPROVEMENT IN PIANO WIRE SCREENS is the title of the bulletin recently issued by the Ceramic Supply and Construction Company, of Columbus, Ohio. It is a sixteen page pamphlet replete with illustrations and descriptive matter setting forth the merits of the Richardson-Lovejoy piano wire screens. This screen is considered to be one of the best in the country. The company has recently added to this patented screen the Lewis device for preventing the spreading of the wires, which does away with all troubles due to clogging. Any manufacturer considering the purchase of a screen should write the Ceramic Supply and Construction Company, of Columbus, Ohio, for their latest literature on this subject.

THE AMERICAN ROAD MACHINE COMPANY, of Kennett Square, Pa., is mailing to its trade an attractive pamphlet on the Champion crushing and road building machinery. The body of the pamphlet consists of sixty well printed pages, containing views of their plant and their various machines and supplies and interesting and instructive descriptive articles on their rock crushers, dies, bins, screens, conveyors, engines, boilers, cars, drills, road machines, scrapers, rollers, wagons, ploughs, etc. The Good Roads Machinery Company, Kennett Square, Pa., are the selling agents for this company. Communicate with them for their latest bulletins.

GREEN STEEL PLATE FANS is the title of the Green Fuel Economizer Company's latest booklet. The cover is very seasonable, being in a light green, the title being printed in black and white. The body is printed on a high grade enamel paper and consists of fifty-six pages of illustrations and reading matter, including numerous tables of dimensions. This company, whose main office is at Matteawan, N. Y., manufactures excellent grades of steel plate fans, blowers and exhausters, steam heater coils, waste heat air heaters, mechanical draft outfits, heating and ventilating and drying apparatus and draft dampers and engines.

THE LONG-LOST EGG.

BY JAMES RAVENSCROFT.

I.

Flora was a farmer's daughter, and for short they called her Flo. And she lived in Indiana, near the town of Kokomo. Flo longed with all her fond young heart a millionaire to wed; "I'll never, never get one here!" with tears and sobs she said. One day while bringing in the eggs the hens had freshly laid A happy inspiration came to cheer that lonely maid. The eggs were to be shipped back East for plutocrats to eat, So on the shell of one of them she wrote these words discreet:

"I'm a pretty girl, quite simple
in my ways, and I've a dimple,
And to be a rich man's darling I am dying. Oh, I beg
That you'll write to Flo Pasana,
Kokomo, in Indiana."
Alas! She could not know the fate of that ill-fated egg!

II.

The egg was shipped with other eggs, all in a big egg crate. And with its sister, brother eggs it met the self-same fate, It landed in a storage house and there, day after day, It stayed and stayed while years and years slipped silently away. And Flo hung on with hopeful heart and waited all in vain, And then at last she tied up to an Indiana swain, She moved to town. One day some strictly fresh laid eggs she got From an honest grocer, and that egg was in the lot!

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 492.]

WANTED, FOR SALE, ETC.

FOR SALE.

A first-class brick plant in every respect. Plenty of the very best clay. Splendid market for brick. Have lot of orders on hand at the present time. Must sell to wind up estate.

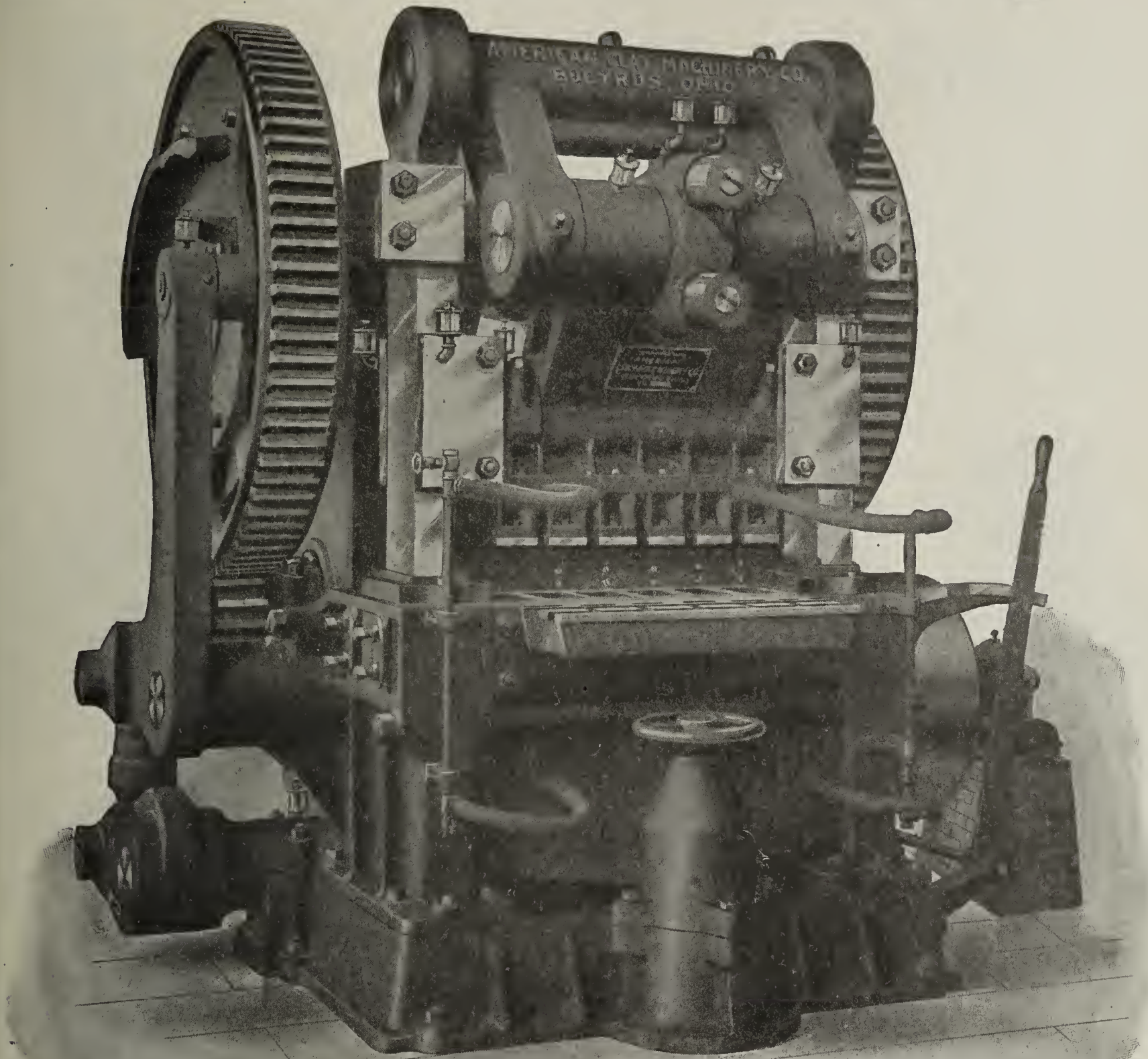
CARROLLTON BRICK COMPANY,
31 d Carrollton, Ky.

FOR SALE OR LEASE.

The Hutsonville Brick and Tile plant, located on the Big Four Railway and Wabash river, in the rich oil county of Crawford. Plenty of material, natural gas. Excellent demand for drain tile and increasing. Address the plant at
21 dm Hutsonville, Ills.

For Sale, Wanted, Etc., Ads Continued on
Pages 493-495.

"A Quality Above All Others" in Clayworking Machinery.



No. 599—Six-Mold Press.

This press is built in a most substantial way, and is made to stand many years of hard service, is constructed on the simplest possible lines, all its parts being accessible and easily kept in repair. The mechanical movement of the press is such that the full pressure is held long upon the brick and without loss of time or diminishing the capacity. The result is a brick that is perfect and uniform throughout and without a flaw, seam or granulation. The machine is supplied with a friction clutch pulley, enabling the operator to have complete control over the machine at all times. The stresses incident to the pressing of the bricks are taken up by two immense steel side bars. These bars serve a double purpose; they also serve as guides for both top and bottom crossheads. The machine is on the toggle principle, very heavy, with all wearing parts adjustable. The lower crosshead moves upward in ejecting the brick, this arrangement relieving the press of excessive stresses or using unnecessary power. The charger is arranged with separate guides. The mold box liners can be quickly changed and the liner adjustment changed. The thickness of the brick can be regulated. The bearings are long and gearing ample, while the crank shaft is of steel. A full description of this and other clayworking machinery for the asking.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

"A Quality Above All Others" in Clayworking Machinery.

Be sure and mention THE CLAY-WORKER in answering ads.

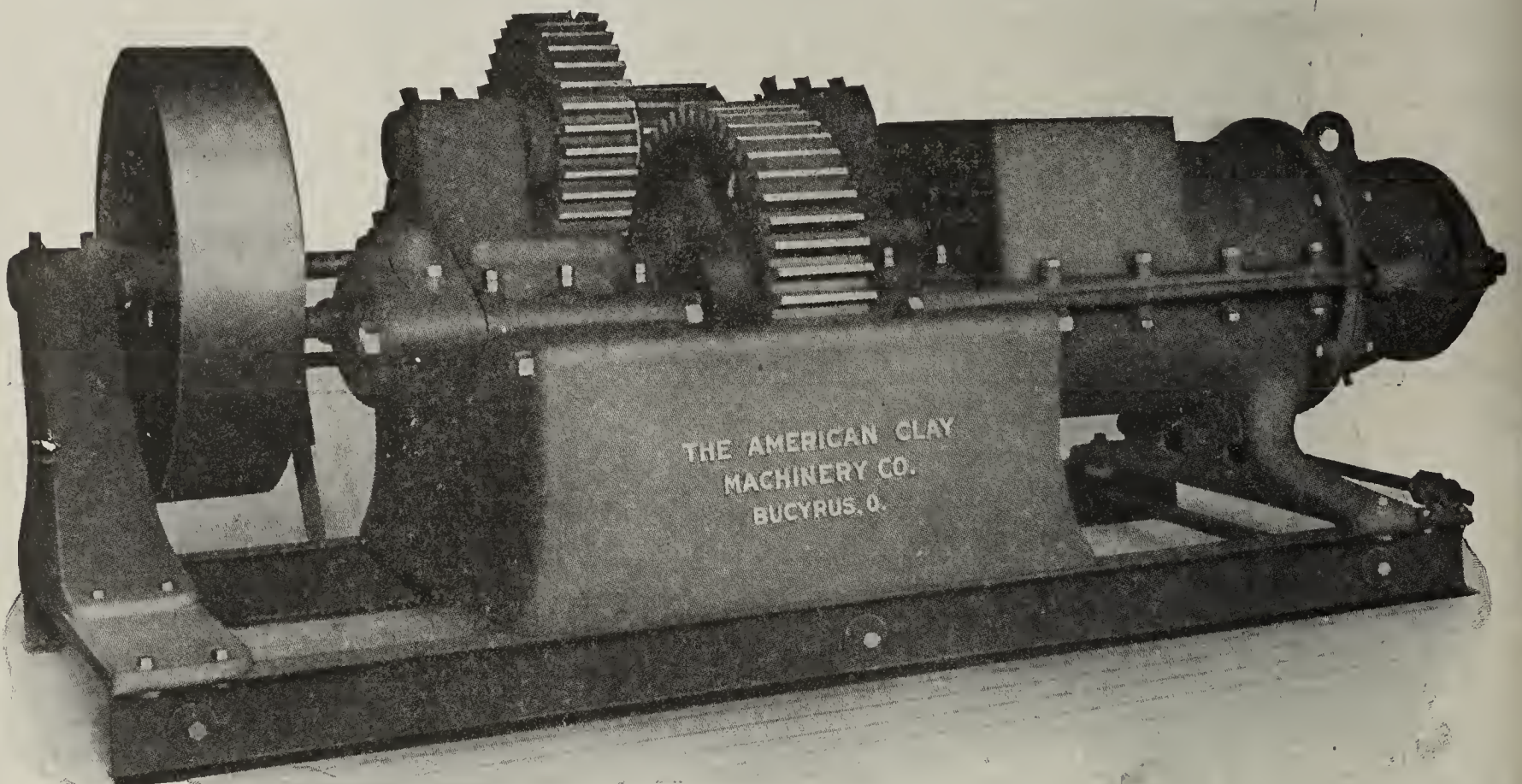
"A Quality Above All Others" in Clayworking Machinery.

Fills Every Promise

When we designed and built the first No. 65 Auger Machine, a little over a year ago, we felt confident it would be a most dependable machine; one with a capacity beyond anything else, and a quality able to back such a capacity. The experience of all the users of the No. 65 amply proves that our expectations were well founded and our confidence not misplaced. It is a machine you can depend upon, as proof of which we quote from several users:

The Denny Renton Clay & Coal Co., Seattle, says: "We are much pleased with the No. 65. The machine made 108,000 brick per day almost from the start, that being the limit of our represses. When we have our additional repress installed we will make 144,000 brick per day."

The Coffeyville Shale Brick Co., Coffeyville, Kans., says: "The No. 65 Auger Machine has made 16,408,000 brick



No. 65 Auger Brick Machine.

in 174 working days, and we are sure it is capable of turning out 125,000 brick each day of 10 hours. It is very light running, requiring less power than any machine we know. We are more than pleased with the No. 65."

The Marion Brick Works, Montezuma, Ind., says: "The No. 65 Auger Machine has done more than you claim for it. It turns out building brick at the rate of 250,000 per day of nine hours."

What this machine is doing for others ought to be an indication of what it will do for you. We will refer you to other users of the No. 65 on request.

We build every machine and appliance for the manufacture of every class of clay products by every process. Being the largest manufacturers of clayworking machinery in the world, we can offer the buyer advantages worth consideration.

We build several dozen other styles of auger machines for various purposes.



The American Clay Machinery Co.,
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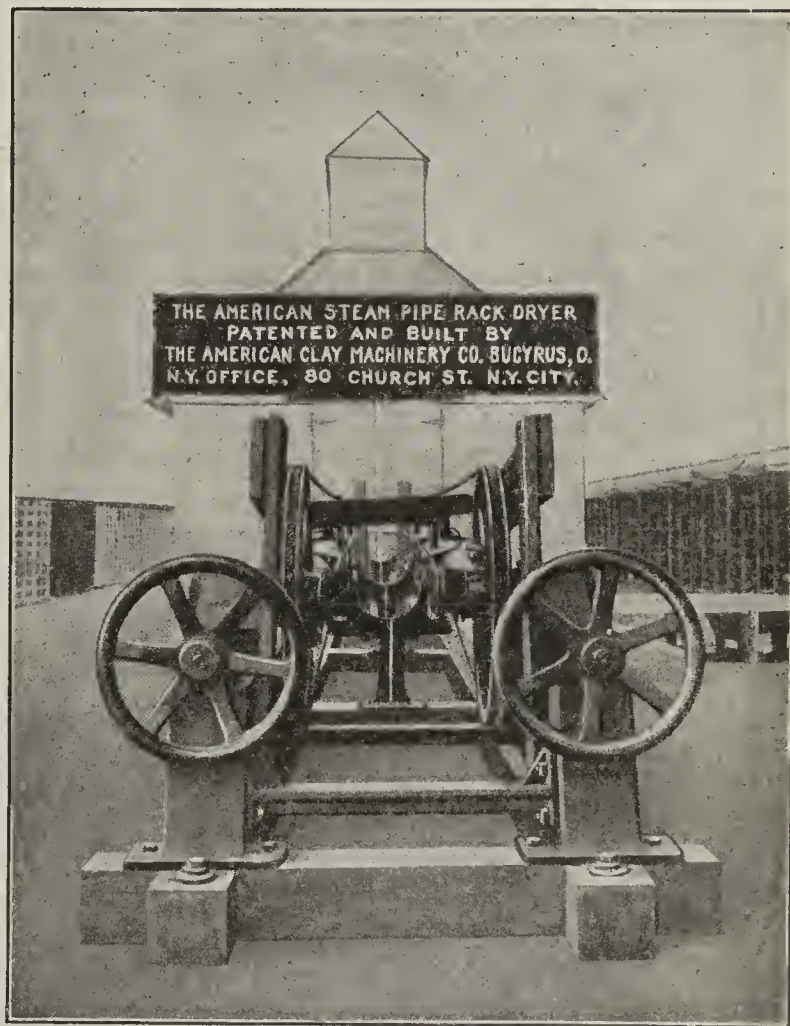
Steam Pipe Rack Dryer

The Steam Pipe Rack Dryer is a rack dryer arranged for drying brick on pallets. The pallets are made of steel plates. The 1-inch pipes which form the shelves or racks are placed parallel in a horizontal position and are supported at intervals with vertical cast-iron racks, having grooved cross-pieces

properly spaced for supporting the pipe which form the shelves. The steel pallets slide in endways onto the pipe racks. The ends of the pipes, which form the shelves or racks, are connected with special manifolds, through which the steam is introduced. An entirely new method of circulating the steam through the pipes is used. This system is economical in the consumption of steam, reducing the quantity of fuel required. The brick on the steel pallets are dried individually and not collectively, therefore the time required for drying is greatly reduced, and it is possible to dry



the brick successfully in from ten to twelve hours. The pipe rack dryer is constructed in sections or divisions, and the circulation of steam in each division is under control, so that the heat may be regulated according to requirements. The dryer is erected in a specially constructed building, so arranged that the circulation of air for carrying off the vapor from the drying brick may be regulated as required. The manipulation of the vents or dampers is always under perfect control. This feature of the system enables the drying to be regulated according to requirements, and is a very important point in the rapid and successful drying of brick. For conveying the pallets loaded with brick to the dryer we use a cable conveyor system. For soft-mud brick the upper end of the cable conveyor is fitted with a dumping attachment, and when the mold of brick is dumped onto the pallet it is then automatically delivered to the cable conveyor and is conveyed to the pipe rack dryer. When the brick are dried the pallets are taken from the pipe racks and placed on the same cable conveyor, which may be extended out to the kilns. This system does away with all trucking from the machine to the racks, and does away with all wheeling from the racks to the kilns. The brick are handled on the pallets at all times, and are therefore delivered to the kilns in a much better condition than when they are loaded from the racks on the barrows and wheeled into the kilns.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

"A Quality Above All Others" in Clayworking Machinery.

Be sure and mention THE CLAY-WORKER in answering ads

"A Quality Above All Others" in Clayworking Machinery.

The World's Best Clay Screen

Greater Capacity. Less Wear and Tear. Improved Output.

Here is a radical departure in Clay Screens. The motion is centrifugal instead of vibratory. The life of the machine is thus lengthened and the capacity increased.

As the accompanying cut shows, the screen is made up of two hoppers substantially mounted on a steel frame. The screen plate is circular, with large screening surface. It is supported by spiders in a horizontal position. The spiders are keyed to the vertical shaft, which is connected to the driving shaft by a pair of bevel gears.

Just beneath the screen plate is a steam coil heater arranged to heat the screen plate to prevent damp clay from clogging the perforations in the plate.

Surrounding the vertical shaft is a cast iron hopper or spout, through which the clay is fed to the screen plate. This hopper can be raised or lowered to regulate the flow of clay on the screen. The hopper being always full of clay, keeps an even flow to the screen. The screen as it revolves throws the clay from the center to the outside of the screen plate, the flow being even and regular. The larger particles of clay, too large to pass through the perforations, pass over the screen plate to the outside and fall through the outer housing to a spout conveying them to the grinding pan for re-grinding. The fine particles of clay sift through the screen plate into the inner housing or hopper, and pass to a conveyor and into the clay bin.

The whole operation is rapid and thorough, and the principle insures great capacity and freedom from trouble. Many of these screens have been installed and are giving universal satisfaction.

In actual operation the No. 147 Screen, which has a screen plate six feet in diameter, is screening equal to the capacity of two nine-foot dry pans. We also build this screen with a four-foot screen which will handle clay to the capacity of one pan.

Full particulars as to the construction and operation of this screen will be sent upon request.

We build every machine and appliance required for the manufacture of every class of clay products by all processes. We are much the largest manufacturers of Clayworking Machinery in the world. Manufacturing as we do every machine and appliance right in our own factories, we are better prepared to serve you at a saving in time and money than others, and are able to guarantee the quality of every machine.



Centrifugal Clay Screen.

Patented and Patents Pending.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

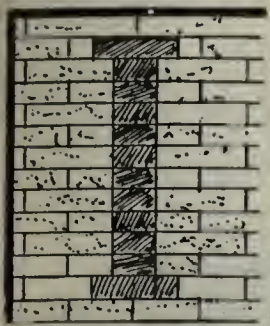


"A Quality Above All Others" in Clayworking Machinery.

Be sure and mention THE CLAY-WORKER in answering ads.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



INDICATIONS are that the brick output of Wisconsin will be far greater this year than in years past. Manufacturers and jobbers say that, judging from the orders that are being received even at this early date, the present season is to be a record breaker. Contracts have already been awarded in Milwaukee for several large buildings, and there is a

vast amount of work under contemplation. It seems to be a certainty that more building will be carried on in Milwaukee and about the state this spring than ever before. This is good news to Wisconsin brick manufacturers. In this state there are vast deposits of raw material and it is expected that there will not be an idle kiln to be found this year.

That Wisconsin is second to Ohio in the manufacture of brick and pottery, is the opinion of H. V. Vincent, representative of a well known brick manufacturing concern of Cleveland, who was a recent Milwaukee visitor.

"Ohio, I believe, is the leading brick manufacturing state, and our product has a fame the world over," said Mr. Vincent. "The brick not only is cheaper, but the soil and climate of our state somehow is peculiarly adapted to the manufacture of brick. There is now a shortage in the brick supply of Cleveland. My firm has day and night gangs at work and yet we are more than a month behind the demands.

"It is criminal carelessness to waste old brick," said Mr. Vincent. "Not long ago I saw in a little Ohio town an old brick house being demolished and the brick thrown into a gully. I remonstrated with the owner and he said that he believed that the brick had outlived its usefulness. When I told him that I would pay him as much for the old brick as he would have to pay for a certain grade of new ones he was startled. Before I was through lecturing him he had given orders to recover all of the dumped brick. With good brick, the older it is the better."

The Columbia Brick Company, of Gresham, Ore., which is arranging to drive most of its brick machinery with motors, has placed orders with the Allis-Chalmers Company, of Milwaukee, for considerable equipment.

The twentieth annual convention of the Wisconsin Retail Lumber Dealers' Association, which was held in Milwaukee during the latter part of February, brought a number of building supply concerns as exhibitors. Among the number were: The Chicago Portland Cement Company, Chicago; United States Gypsum Company; Atlas Portland Cement Company, New York; Universal Portland Cement Company, Chicago; Marquette Cement Manufacturing Company, LaSalle, Ill.; Winthrop Asphalt Shingle Company, Chicago; Plymouth Gypsum Company, Fort Dodge, Iowa.

The Kemmeter Bros., brick manufacturers of Jefferson, Wis., were in Milwaukee recently and purchased two new machines for their brick manufacturing plant. The new equipment will increase the capacity of the plant 1,000 brick daily.

Brick will be used as the material in the \$10,000 worth of paving which will be done at Manitowoc, Wis., this spring. A resolution to this effect was passed by the property owners of the city recently, and the vote was unanimous, with the exception of one property owner. The contract will go to the Schuette Cement Construction Company, of Manitowoc.

A new pulverizer and other equipment will be installed in the plant of the Ringle Brick Company, at Wausau, Wis., at a cost of about \$5,000.

A new feature was introduced in the fight over the pavement to be laid on Ashland avenue, Ashland, Wis., when the city officials tested the samples of various brick proposed.

The Barr brick carried the day with flying colors and stood the test better than any other brick submitted. There had been an effort made to have the Barr brick ruled out of the tests, but this did not meet with the favor of the common council.

J. H. Hensley, of Washington, D. C., was at Washburn, Wis., recently, looking over the plant of the Washburn Brick company, with a view of investing capital in the concern and taking over its management. Mr. Hensley, who is a brick manufacturer, was well pleased with the clay in the vicinity of Washburn. If Mr. Hensley assumes control he will enlarge the plant and specialize in tile manufacture.

The directors of the Fond du Lac Pressed Brick Company, of Fond du Lac, Wis., have decided to enlarge their plant. A new brick kiln, with a capacity of 225,000 brick, will be erected and several new machines will be added. The company expects to begin operations by April 1, and the prospects for the coming year are especially bright.

About two and one-half miles of paving will be done at Beloit, Wis., this year, and if the decision reached by property owners is followed out brick will be used to a large extent.

The Mormon Coulee Brick Company, at LaCrosse, Wis., is arranging for an early start this spring and is planning to increase its output to a considerable extent. A. BADGER.

SEEN IN NEW JERSEY.

Newark steadily reports increasing numbers of building permits and larger values for buildings. A good many brick structures of importance are included in the permits, indicating something of prospects for building construction the coming season. In nearly all instances architects say that they have more requests for plans and that the outlook for business is better.

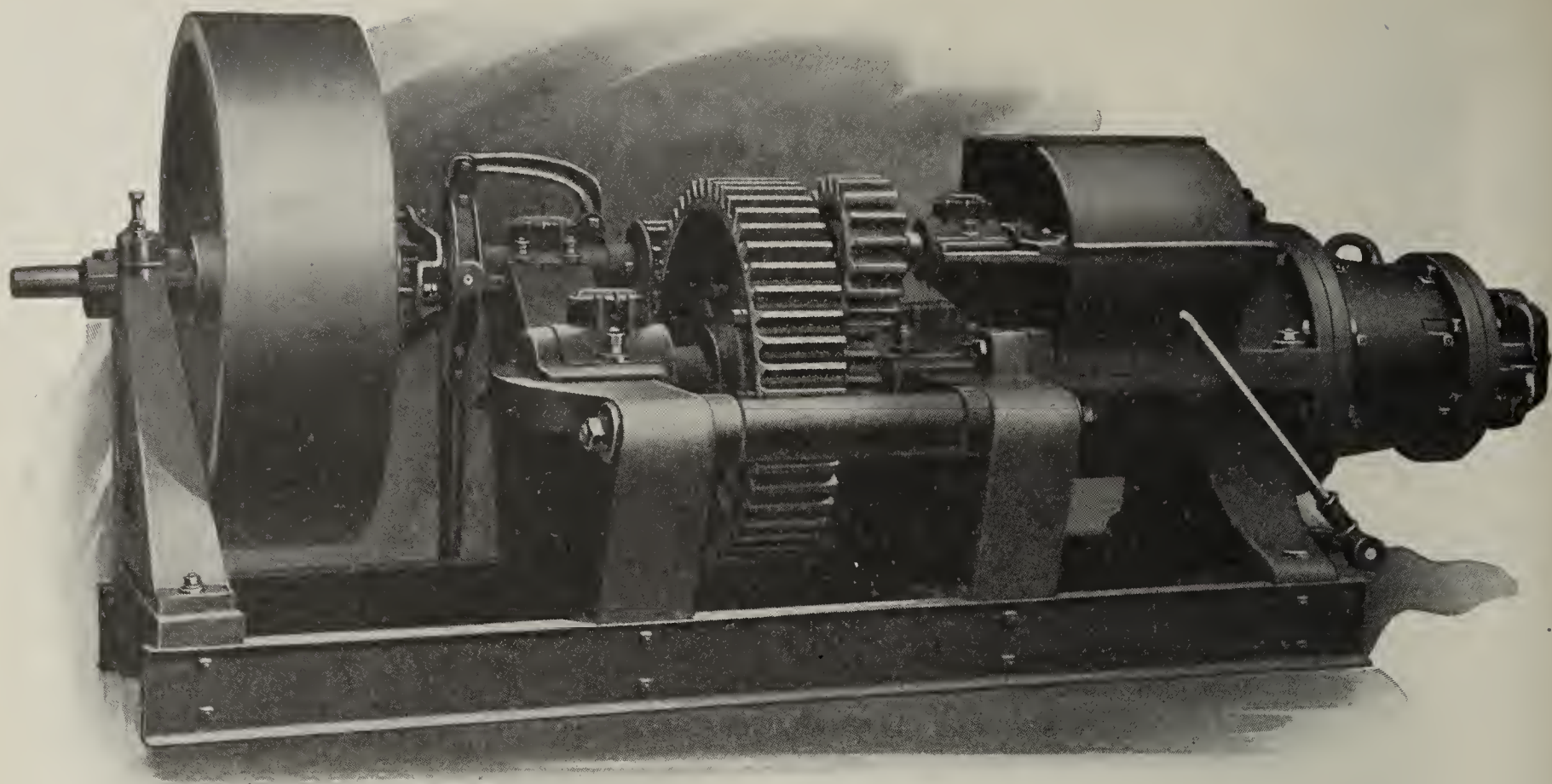
Public works are not lagging this spring. The Bergen County Board of Freeholders has just voted \$100,000 for the beginning of a system of county roads, estimated, when completed, to cost at least \$1,000,000. The bridge commissioners of New Jersey and New York will shortly begin investigations regarding the construction of a bridge across the Hudson river. The last obstacle has been removed from the way of the construction of the huge trunk sewer to drain the Passaic valley, and the Henry Hudson drive along the Palisades will likely be begun under the direction of the state park commission sometime this year. Perhaps work on the driveway to extend along the coast from New York to Cape May, which Governor Fort has advocated for two years, will also be started. Surely New Jersey's share in public works development will be considerable during the next few years.

A. L. B.

AKRON MACHINERY FOR CANADA.

The Taplin, Rice-Clerkin Company, Akron, Ohio, has secured the contract for equipping the large, new plant of the Alberta Clay Products Company, at Medicine Hat, Alberta. The contract is a very large one, and it seems that one particular reason why preference was given to the product of the Taplin, Rice-Clerkin Company is because the gentlemen interested in the erection of the plant at Medicine Hat were thoroughly familiar with the machinery and product of the Taplin, Rice-Clerkin Company on account of their very successful experience at Fort Dodge and Lehigh, Iowa.

Contracts for all this machinery require that delivery begin within sixty days and be completed in about four months. The Taplin, Rice-Clerkin Company now have the contract well under way. The contract speaks very well for the Taplin, Rice-Clerkin machinery. In securing the contract the company was in competition with all the leading manufacturers of clayworking machinery in the country.

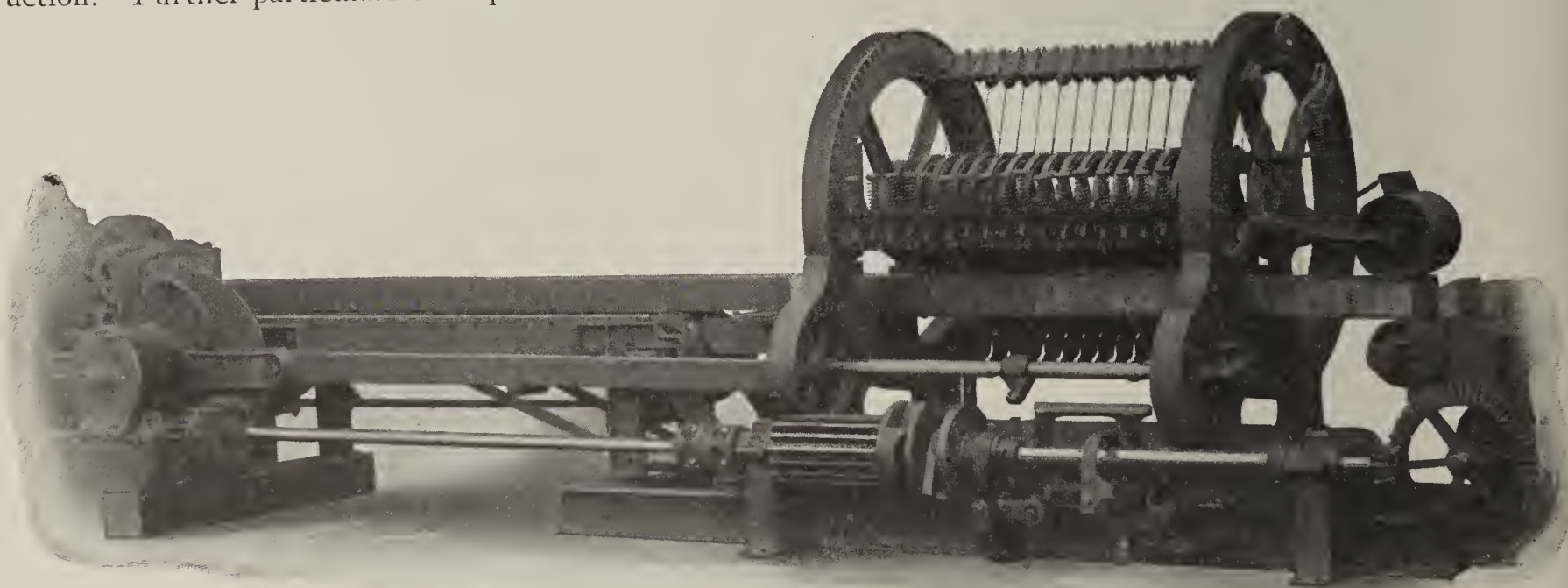


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ad on pages 536-539.

Written for THE CLAY-WORKER.

AMONG THE PHILADELPHIA BRICKYARDS.



THE BRICK manufacturers throughout the various sections of the city are wonderfully sanguine regarding the prospects for 1910. Many are still completing contracts left over from the former year. For instance, Carroll Brothers, in the southwestern section of Philadelphia, are working on one contract for twenty-

seven two-story dwellings, twenty-three at Sixty-first and Race streets, twenty-seven at Fifty-fourth and Race, thirty-six at Sixtieth and Cedar avenue, twenty-eight three-story dwellings at Fifty-eighth and Willows avenue, over sixty at Sixty-seventh and Tasker and Paschall avenues. Then, too, they are working on some large sewer jobs throughout the city.

William H. Conway has been running his yard all the year and they are still busy, and the good word comes that they have no complaint to make.

The Main Belting Company is doing more work than this time last year, and, according to Mr. Plummer, is well satisfied with 1910 prospects.

Mr. S. B. Dobbs reports a satisfactory year's business in his extensive territory, embracing Philadelphia, Baltimore, Washington, D. C., and adjacent territories. In each of the above cities Mr. Dobbs maintains offices and exhibit rooms, and because of the comprehensive exhibits they have become centers of information for the architects, especially in tapestry brick, which has been successfully marketed in these cities and is now recognized as one of the standard productions in high grade brick. It has found its way into the very highest class work executed during the past year. In the Philadelphia territory Mr. Dobbs reports having placed the largest order for face brick ever placed with a Philadelphia concern for Philadelphia use. This order is for 2,250,000 light gray impervious brick to be used for the interior facing of the mammoth building to be erected for the Curtis Publishing Company. Probably the most unique job served during the year was that of the operation of twin cottages erected at Eighteenth and Porter streets by the Girard estate in which tapestry brick was used in most artistic effect. The Baltimore and Washington business has been steadily increasing; the largest order placed in the former city was for 525,000 brick, comprising buff, iron spot and enamel for the exterior, interior and stack of the Baltimore sewage disposal pumping station. The brick industry has proven itself susceptible to the first impulse of returning prosperity, and the plans in preparation and the building operations contemplated indicate that the 1910 demand will keep the factories whose product Mr. Dobbs markets running to their full capacity, and in some instances extensive improvements have been necessary whereby the capacity of some of the factories has been doubled.

Paving block has become a prominent factor in the business of this house, the past year having marked a decided advance in the use of vitrified brick for street work, and Clearfield block has been placed in large quantities in several cities, viz: Wilkesbarre, Philadelphia, Atlantic City and other points.

The Byrne estate at their hand yard, Twentieth and Cambria, made over 3,000,000 brick last year, serving same for seventy-five houses in clusters, running from three to twelve.

John Goodwin's new machine yard, located at Twenty-seventh and Westmoreland streets, has been for many years a hand yard, turning out 3,000,000 brick per year. Mr. Goodwin has run this yard most successfully. Besides the three million output, he has been obliged, from the demand made upon him for brick, to purchase from four or five other yards brick running from 8,000,000 to 10,000,000, from Ridley Park

brick yard, Lansdale, Matawan and from the yard of Joseph Byrne.

The ground recently purchased by Mr. Goodwin is across the road from his old yard. He will build a brick plant here, installing a Martin machine of 40,000 daily capacity and will probably have six kilns. The new plant will be in operation about May 1, and we would like to congratulate Mr. Goodwin and wish him much prosperity.

Joseph Byrne's yard, with its Wiles machine turning out 43,000 brick, six kilns with a capacity of 258,000, stacked 42 high, has recently served operations at Twenty-third and Allegheny avenue for eighty-two houses; Ninth and Butler, 182 houses, and thirteen houses for the Allegheny Improvement Company.

Business is good, prospects are better and Mr. Byrne cheerful.

Webster & Keyser have had a busy year. Two of their operations are dwellings at Fifty-second and Walnut and Fifty-first and Springfield.

Barring the strike and its consequences, the outlook for the present year is good, so good that brick manufacturers are all in good humor in the contemplation of promised prosperity.

M. E. LOCKINGTON.

HEARD IN NEW ENGLAND.

Editor THE CLAY-WORKER:

Statements from builders, or those about to build, or who have contemplated building under favorable business conditions, seem to guarantee a good brick business for the coming season. Developments all over the six states promise to be upon a more extensive scale than ever before. The constant increase in population, which has been more marked during recent years than for a number of years previously, creates demands for new living accommodations, which of necessity must be satisfied by the construction of new buildings. Brick is becoming more popular each year in this section of the country, with the effect always of increasing the demand for the finished article at the yards.

According to more than one statement, the Boston dealers have few brick left. The call for them after the season closed was fully as large as it usually is, with the result that spring requirements will have to be filled direct from the yards. Some of the yards are fairly well supplied, but others have scarcely anything to offer. In some instances it looks as though buyers would fall over each other in their efforts to obtain supplies. In others the conditions are more equable. Perhaps the main proposition, that business promises to be much better, is sufficient after all. March is too early to obtain much accurate information in these Northern latitudes and what is said now must of necessity be largely supposition, and until it is possible to determine accurately what is likely to be done nothing more than general statements are possible.

New Hampshire yards have been forwarding some brick to Boston all winter, and these yards have obtained profitable prices for their products. It seems probable that some of the New Hampshire yards will be practically without stock when spring opens. Others will have a reasonable supply. Shipments now are generally to satisfy daily requirements, which, owing to the season, are not large. Some big operations are of necessity taking considerable quantities, but in the main comparatively little is being done. A few agents are trying to buy stock at present prices rather than to run the risk of waiting until everybody is buying. Prices promise to advance under such conditions. These agents are, therefore, acting wisely in thus attempting to secure such supplies as they need now. They will be able to credit the profits to themselves later.

HIRAM.

We are all out hunting for the dollar, but some of us hunt in a more sportsmanlike manner than others.

THE MANUFACTURE OF BRICKS FOR STREETS AND ROADWAYS.

In a paper read before the first American Congress of Road Builders, Mr. Geo. W. Kummer describes the primary elements of a "Vitrified Brick" as: First, a suitable clay, a mineralized clay, one possessing annealing qualities. Second, the sufficient grinding of this material and its **proper formation in the green state** as absolutely essential for the production of a good paver which he preferably designates not as a vitrified but as an **ANNEALED BRICK**.

During the processes of proper manufacture the constituent elements of such a clay are converted into new forms and the finished brick is a homogeneous mass, free from lime as an active element, and is annealed with every clay particle bonded. This very excellent description of the finished article is in harmony with the requirement of engineering practice which stipulates that a street paver must not absorb over a given percentage of water within a specified time, nor lose more than a certain percentage of its weight when subjected to an abrasion test under established conditions; that it must in short possess not only transverse strength, but the quality of resistance to the ravages of impact, abrasion and absorption.

With this end in view, is it not a logical conclusion that a manufacturing process molding a paving brick to the required shape at one operation, with the constituent particles intimately bonded with the greatest amount of material per cubic inch of contents, and then leaving such a brick to be dried and burned without further mechanical disturbance of its structure, is **the method** productive of the best paver? The Chambers End-cut Auger Brick Machine with Automatic Indenting or Round Corner Cutter produces precisely this result.

The alternative process of molding a green brick to approximate shape, placing it in a press box and squeezing it between two plunger plates in order to change its shape, is commonly termed the Repress Method. That the term is erroneous is evidenced by the fact that Repressed Paving Block are **expanded in bulk** by repressing and have from 3 to 4 cubic inches greater measurement after repressing than before. The ill effects of this expansion of bulk is immediately shown by the fact that certain repressed Paving Block suffered from 4 to 5 points greater loss during the rattler test than End-cut Block not repressed, made from the same shale, on the same plant, and burned in the same kilns.

The End-cut Machine is pre-eminently the one for this method of manufacture, because it not only molds a block of greater density than Side-cut Machines, but for the reason that the end-cut block possesses a structural formation that is in itself an element of strength and of resistance to wear. Since then a better article at less cost is produced without repressing, it would seem that the practice of repressing Paving Block was based entirely on some ground of commercial expediency.

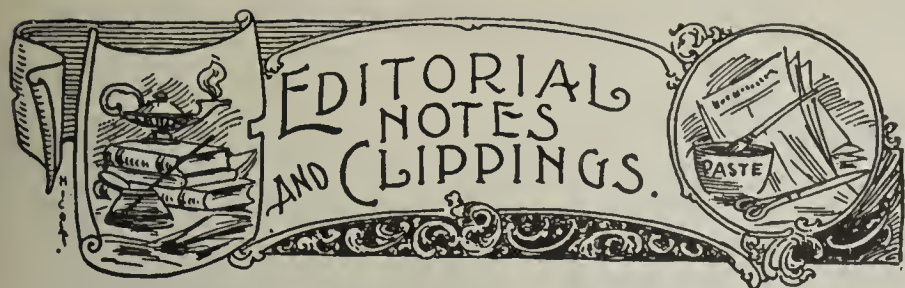
Repressing breaks the bond between the particles formed in molding the material to shape in the brick machine and fails to establish a new bond equally good.

We Build This Machine and The Cutter.

We Also Build REPRESSES For Those Preferring The Repress Method.

CHAMBERS BROTHERS COMPANY

PHILADELPHIA, PA. and CHICAGO, ILL.



Mitchell Brothers will erect a small brick plant at Fredricksburg, Ohio.

J. S. Houston, Spokane, Wash., R. F. D. No. 2, is in the market for a second hand sander and pug mill.

W. W. Bales is installing a brick plant at DeQueen, Ark., which he expects to have in full operation early in April.

Yard No. 3 of the Illinois Brick Company, Chicago, Ill., was damaged to the extent of \$1,000 by fire which originated in the dryer.

A small blaze caused by an overheated kiln burned part of the roof on the Oklahoma Brick Company's plant recently, causing a loss of \$200.

The stockholders and directors of the San Angelo, Texas, Brick Manufacturing Company have increased their capital stock from \$20,000 to \$40,000.

The property of the Clarksburg High Grade Shale Brick Company, at Clarksburg, W. Va., was purchased recently at sheriff's sale by Mrs. Rosa McKeehan.

Leopold Achee, a veteran brick manufacturer of Labadieville, La., died recently at the advanced age of seventy-one. He had been engaged in the brick business nearly all his life.

The Leroy Brick and Tile Company, of Kiowa, Okla., has been incorporated with \$50,000 capital by C. and J. E. Wagner, of Kiowa, and D. A. and F. W. Bennett, of Oklahoma City.

The North Hudson Brick Company, of Newburgh, N. Y., of which Henry M. Walsh is the president, is contemplating removal to Plainfield, N. J., where it may establish a large plant in the East End.

W. Mercer Morris, formerly connected with the H. Stevens Sons Company, of Macon, Ga., has closed a deal taking over the property and business of the Muscogee Brick and Terra Cotta Company, of Columbus, Ga.

W. Jordan Masee and Jack Masee have purchased the Bibb Brick Company, of Macon, Ga., from John T. Moore and will operate it in the future. New equipment will be put in at once and the capacity of the plant will be doubled.

F. W. Dennis, the well known kiln builder of Norfolk, Va., has just returned from a visit to England, where he had a delightful time. He writes that it is possible he may return sometime during the summer for the purpose of building a number of kilns.

The Shawnee Flash Brick Company has been incorporated to manufacture brick at Shawnee, Ohio, by W. O. Copeland, L. W. Tussing, Fred Baumann, Sam A. Hudson and J. E. Koontz. The company will take over and operate a brick plant in the Hocking district and make face brick, terra cotta and other clay products.

Polson, Mont., is to have a brick plant. The Lake Shore Brick and Tile Company is the name of the new concern. J. A. Barre is at the head of the company and M. G. Alexander will have the management of the plant. The clay has been tested and proven of a good quality for building brick.

All possible speed will be made in constructing the plant of the American Clay Products Manufacturing Company at Stillwater, Minn. The expectation is that it will be in operation in six weeks, turning out building brick, sewer pipe, drain tile, and ultimately pottery will be added to the production.

The Cliffwood Brick Company, of Cliffwood, N. J., was so well pleased with the first dryer rebuilt for them by Edwin A. King, the dryer man of Richmond, Va., that he has been commissioned to rebuild a second dryer, which is to consist of ten tunnels. The first dryer is a nine-tunnel dryer and they are getting 54,000 brick from it daily.

W. E. Dunwody, president of the Standard Brick Company, of Macon, Ga., has been elected president of the Georgia Macon State Fair Association, which association, Mr. Dunwody says will pull off the biggest fair next fall ever pulled off in the South. Mr. Dunwody left recently on a

trip through Central America. He expects to visit Honduras and look over clay conditions generally.

The tile plant of Davis Bros., near Anderson, Ind., which was destroyed by fire sometime ago, is being rebuilt at a cost of \$40,000.

A large plant is to be erected at Tucumcari, N. M., for the manufacture of sand-lime brick. S. W. Bunce, of Boulder, Colo., has charge of the affair.

The Pine Bluff, Ark., Brick Company filed a certificate with the Secretary of State recently announcing that it had reduced its capital stock from \$50,000 to \$30,000.

The Pawhuska Vitified Brick and Tile Company, of Pawhuska, Okla., has been organized by O. W. Buck, H. B. Woods, R. L. Hall and others. The company is capitalized at \$30,000.

William S. Kimball, president of the Equitable Brick Manufacturing Company and an extensive real estate holder, died recently at his home, 404 South Forty-second street, Philadelphia, Pa.

The Brown Clay Works (Inc.) has filed an assignment for the benefit of its creditors. The concern is located at Fort Salonga, N. Y., and manufactures brick. Charles S. Mott, of Northport, is named as assignee.

The plant of the Drummond, Pa., Sewer Pipe Company, which has been idle for the past year, has resumed operations. The demand for their product during the past year has been supplied from the immense stock stored in the yard.

The New Jersey Clay Company has filed articles of incorporation. Its authorized capital stock is \$250,000, and the incorporators are T. C. Curtin and Peter Curtin, of Newark, N. J., and William Prout, of Bernardsville, N. J. The office of the company will be at Newark.

Articles of incorporation have been filed by the Builders' Brick Manufacturing Company, of Hooper, Neb. The incorporators are John H. Waterman and H. H. Waterman. The company has been in the business of manufacturing brick for many years. The capitalization is \$100,000.

The Conococheague Brick and Earthenware Company, at Williamsport, Md., operated by Victor Cushwa & Sons, is making a number of improvements in the plant, which increase the capacity to 50,000 brick per day, which their trade demands. They have a million and a half brick sold ahead, with good prospects for a large trade the coming season.

Elijah W. Brigham, a pioneer of western New York, died at his home in Lestershire, March 3. Mr. Brigham was 84 years old and had been active in the management of his brick business until two years ago, when he resigned on account of his advanced age, after having been engaged in the business more than half a century. He is survived by his widow and one son.

William A. Sanborn, a brick manufacturer of Somerville, Mass., and well known in brick and building business throughout New England, died March 2 of pleuro-pneumonia, after a short illness, at his home, West Somerville. He was ill only a short time. He was born in Somerville in 1852, succeeding to the business of his father, which he built up to be one of the largest in the state. He is survived by his wife, two daughters and one son.

The Claycraft Brick Company, of Columbus, Ohio, is pleased to announce the purchase of the face brick factory at Groveport, Ohio, and the entire business of the Columbus Clay Products Company. The trade generally is cordially solicited to visit their general offices, suite 303 New Hayden building, 16 Broad street, East Columbus, Ohio. J. W. Kaufman is president and treasurer, W. A. Miller is vice-president and W. H. Hoagland secretary of the concern.

Arrangements have about been perfected by which three of the independent brick manufacturing plants in and near Clearfield will consolidate under the name of the Clearfield Brick Manufacturing Company. The three plants are the Clearfield Brick Manufacturing Company, operated by George R. and Albert D. Bigler; the Paterson Clay Products Company, operated by Alex Paterson, Hon. A. O. Smith and R. H. Thompson, and the Standard Brick and Tile Company, operated by Allen Wrigley, W. A. Porter and Robert Lynn. The first named plants go into the consolidation as now organized. The Standard passes out of present ownership entirely on Messrs. Wrigley and Porter retiring. Mr. Lynn will remain with the new organization. The capacity of the

(Continued on page 489.)



Barrett's PAVING PITCH



(EAST RICH STREET, COLUMBUS, OHIO, PAVED 1892)

Here is a 17-year old pavement. It looks like new—no breaks, no cracks, no undermining, no holes, no unevenness of contour, showing that the BARRETT'S PAVING PITCH with which the joints were filled gave perfect protection to the foundation against water and frost.

Watertight, Elastic, Adhesive

In Barrett's Paving Pitch we offer to city engineers a grade of coal tar pitch which experiment and experience have shown to be the best for use as a filler in the joints of brick, granite or wood block pavements.

The merits of pitch as a pavement filler have caused it to be almost universally adopted, but asphalt, cement and even sand still have their advocates. Asphalt has the fault of not staying watertight. Asphalt, being weak in adhesion, cleaves off the blocks when they contract and lies in loose slices which can be picked out with the fingers. Asphalt is costlier than pitch and more difficult to apply.

Cement prohibits expansion in hot weather, and the tension results in bulges and blowouts. Cement makes the pavement bridge depressions of the foundation and the weight of a heavy team sooner or later smashes the arch, causing long, dangerous cracks. And cement makes excavation difficult and costly.

Sand of course is a cheap filler, but is not watertight and admits frost to the foundation.

Barrett's Paving Pitch stays watertight. It remains elastic and adhesive and simply settles a little lower in the joints when the blocks contract or rises when they expand.

Booklets on request

BARRETT MANUFACTURING COMPANY

New York
Cleveland

Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
London, England

EDITORIAL NOTES AND CLIPPINGS—Continued.

new combination will be over 50,000 paving brick per day, or 80,000 building brick.

The Suburban Brick Company, of Wheeling, W. Va., is making extensive improvements to its plant, which will cost several thousand dollars.

The Diamond Press Brick Company, Ferris, Texas, has been incorporated by J. N. Batchler, J. H. Wilson, C. E. Koopen and others, with \$30,000 capital stock.

The Jewettville Brick Company has been organized to manufacture building and paving brick at Jewettville, N. Y. W. J. Minehan, H. W. Huntington and J. A. Lynch are interested.

The Brook, Ind., Terra Cotta, Tile and Brick Company has made a number of improvements the past winter, increasing the capacity of its plant 30 per cent., and is all ready for spring trade, which promises to be unusually good.

The Western Brick and Supply Company, of Hastings, Neb., is making a number of improvements and additions to its plant, including the construction of a new kiln 40x160 feet. When all improvements are completed the plant will have been doubled in capacity.

The Robertson Brick Company, of Birmingham, Ala., has been incorporated, with \$10,000 capital stock. Officers and incorporators of the firm are: W. L. Robertson, president and manager; A. C. Sharpley, secretary and treasurer; Mrs. L. B. Robertson and Mrs. T. O. Sharpley.

The Boone Clay Company has just been organized at Boone, Iowa, and has taken over the clayworking properties of J. B. McHose, of Boone. The officers of the new company are: President, J. F. Yegge; manager, J. F. Yegge; vice-president, Cavin Crowe; treasurer, S. L. Moore; secretary, T. J. Mahoney; directors, M. J. Reilly, John Ivis, Gavin Crowe, E. F. Jones and J. F. Yegge.

Application for charter has been filed with the Secretary of State of West Virginia by the Adamantine Clay Company, of Martinsburg, W. Va. The authorized capital of the company will be \$150,000, and among the incorporators are James M. Porter, of Pittsburg; John P. Kearfott, of Kearneysville; C. W. Hess, of North Mountain; S. L. Dodd, of Hedgesville; J. W. Woltz, of Waynesboro, and Mayor C. G. Cushwa, A. D. Darby, J. Frank Thompson and F. Vernon Aler, of Martinsburg.

The Sumter Brick Works has found it necessary to enlarge its plant at Sumter, S. C., by installing another dry kiln, which increases the drying capacity to 60,000 brick a day. Another 125 horse power boiler of high pressure has been put in also. A new automatic feeding device for feeding clay to the grinding machine and brick molder has also been put in. This company turns out a product known as "Sumter grays," for which there is a great demand in that section.

Owing to increase of business in the East, it has been found necessary for the J. D. Fate Company to move into more commodious quarters, and after March 1 they will be found in suite No. 6060 of the Metropolitan Life Insurance building at 1 Madison avenue, New York City. They are still in the building that they first moved to and have only gone into larger quarters. Mr. A. E. Davidson is still in charge and will be pleased to greet his many friends among clay-workers at the above address whenever they are in New York City.

The Corry Brick and Tile Company's plant at Corry, Pa., which has only been in operation a couple of years, is proving too small for the demand and a number of improvements will be made this spring for the purpose of enlarging the capacity, which is now something over 50,000 per day. They shipped brick during the past year to forty-eight cities in the United States and Canada. The officers of the company are George H. Dunham, president; W. M. Lindsey, vice-president; A. J. Hazletine, secretary and treasurer; D. Warren DeRosay, general manager.

George Brooks, a pioneer brick manufacturer of Maine, died at his home in Orrington, that state, February 23, at the advanced age of 95 years. He had been in good health up until the last few months. He developed an extensive clay product business, building large kilns for the manufacture of drain tile, pottery and earthenware, and also made tobacco pipes, importing various kinds of foreign clay for some branches of the business. He had been prominent in town affairs, held many town offices and represented the town in the Maine legislature. A wife and three sons survive. One

of the sons, Harry N. Brooks, is manager of the Brooks Brick Company.

The Bridgeport Brick Company, Bridgeport, Texas, has been incorporated by C. W. Martin, J. W. Patterson, W. W. Henkel and others.

A. P. Coolidge, C. R. Coolidge, W. N. and S. Straub and others have incorporated the Helena Brick Company, of Helena, Ark., with \$15,000 capital stock.

J. H. Keough, of Clymer, Pa., has purchased the E. J. Mildren farm, near Blacklick, Pa., for the purpose of developing the veins of fire clay. A plant will be erected in the near future.

The El Reno, Okla., Vitriified Brick and Tile Company has been incorporated with a capital stock of \$10,000 by the following incorporators: A. E. Lane, Hennessey; Harry Laux, Hennessey; A. C. Krenke and N. A. McLean, El Reno.

The Clay Products Company, at Spokane, Wash., has been granted articles of incorporation and will take over the property of the Spokane Pottery Company, at Clayton, Wash. The company will make extensive improvements at the plant. Frank Sweeney is at the head of the concern, and H. M. Smartwood will have the management of the plant.

The Utah Fire Clay Company will spend \$50,000 in improving its plant at Salt Lake City. The chief product of the company is sewer pipe, and, with the new equipment which will be installed, the company will be able to take care of all requirements in this line for Utah, Idaho, Nevada and Montana. They expect to have the new plant ready for operation in about four months.

The Lawrenceburg Construction Company is a new industry, recently organized at Lawrenceburg, Tenn., to succeed Boulie & Orth, brick manufacturers. The company was organized by electing John Orth, of the old company, president, and Henry Feldhaus, secretary. It was capitalized at \$6,000. The Boulie & Orth site will be taken by the new company, but will be greatly enlarged and additional buildings constructed.

The Kittanning Brick and Fire Clay Company, at Nealeton, just above Wickboro, Pa., is fast approaching the realization of its long drawn out anticipations. Its new buildings are practically completed, and the machinery is being installed, among which is a fifteen thousand dollar electric plant, with which its mines will be operated and lighted. It is expected that everything will be in readiness early in April, when the entire new plant will have a capacity of 150,000 high class brick every twenty-four hours. The main office of the company is at Kittanning, Pa.

The Oklahoma Silicate Brick Company will build a plant at Oklahoma City, Okla. The officers of this company—W. Zuill, Janesville, Ohio, president; W. O. Mitchell, Oklahoma City, vice-president; A. Dunn, Oklahoma City, treasurer, and R. L. Corley, general manager—are men who have been identified with the clay and brick works in Oklahoma for a number of years. The company is capitalized for \$50,000 and incorporated under the state laws. The site for the factory has been selected and by June 1 everything will be in readiness for operation and about fifty men will be employed.

The Miller Vitriified Brick Company, of Mt. Clemens, Mich., has been organized and articles of association have been filed with the county clerk. The incorporators are Albert Strelow, Edward J. Nebel and Herman A. Miller, of Detroit, Mich. The plant, as designed now, will have a capacity of 30,000 brick daily and will be modernly equipped with large kilns using coal or crude oil for fuel, probably the latter. The brick which will be manufactured at the proposed plant will be of two colors, one a dark red and the other a dark buff. Both will be vitriified and therefore impervious to water.

THE ANTON VOGT KILN CONSTRUCTION COMPANY,

Down-Draft Kilns designed for all purposes.

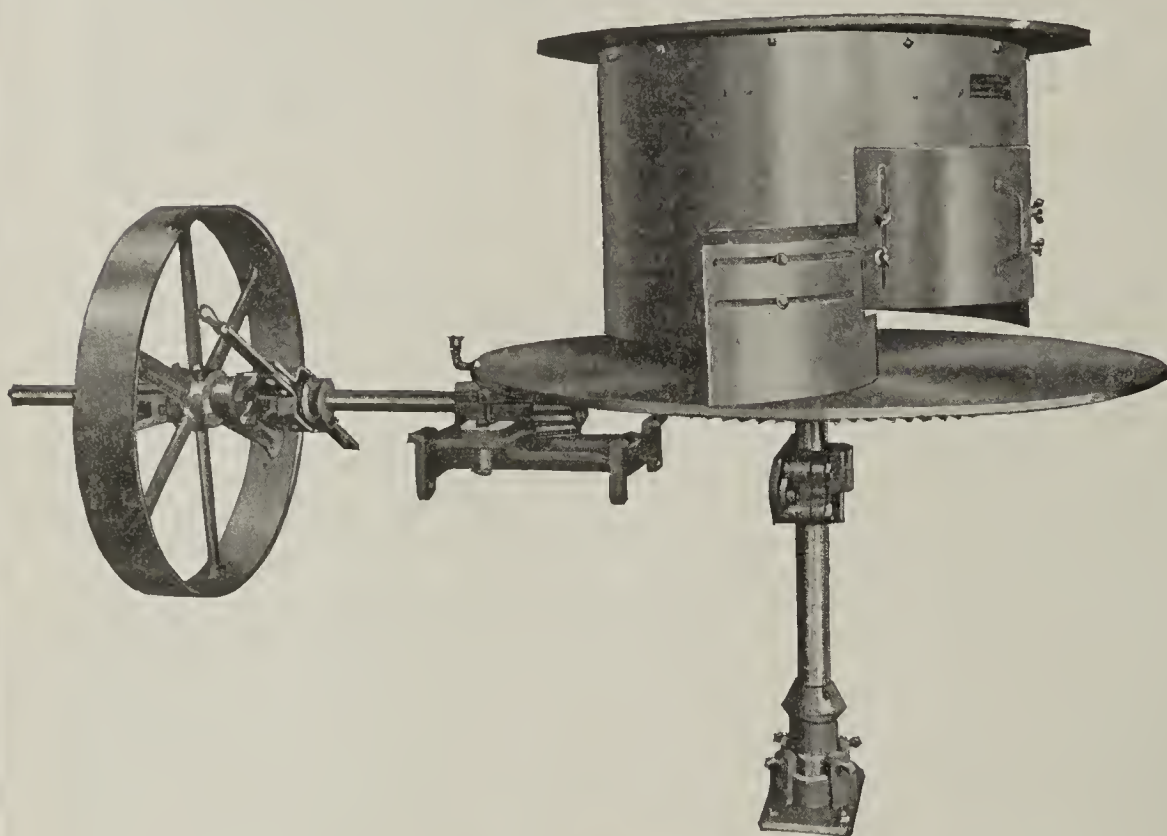
OUR SPECIALTY

A Superior Kiln for Common Brick that is
AS CHEAP AS an updraft kiln.

Fort Smith, Arkansas.

AUTOMATIC FEEDING

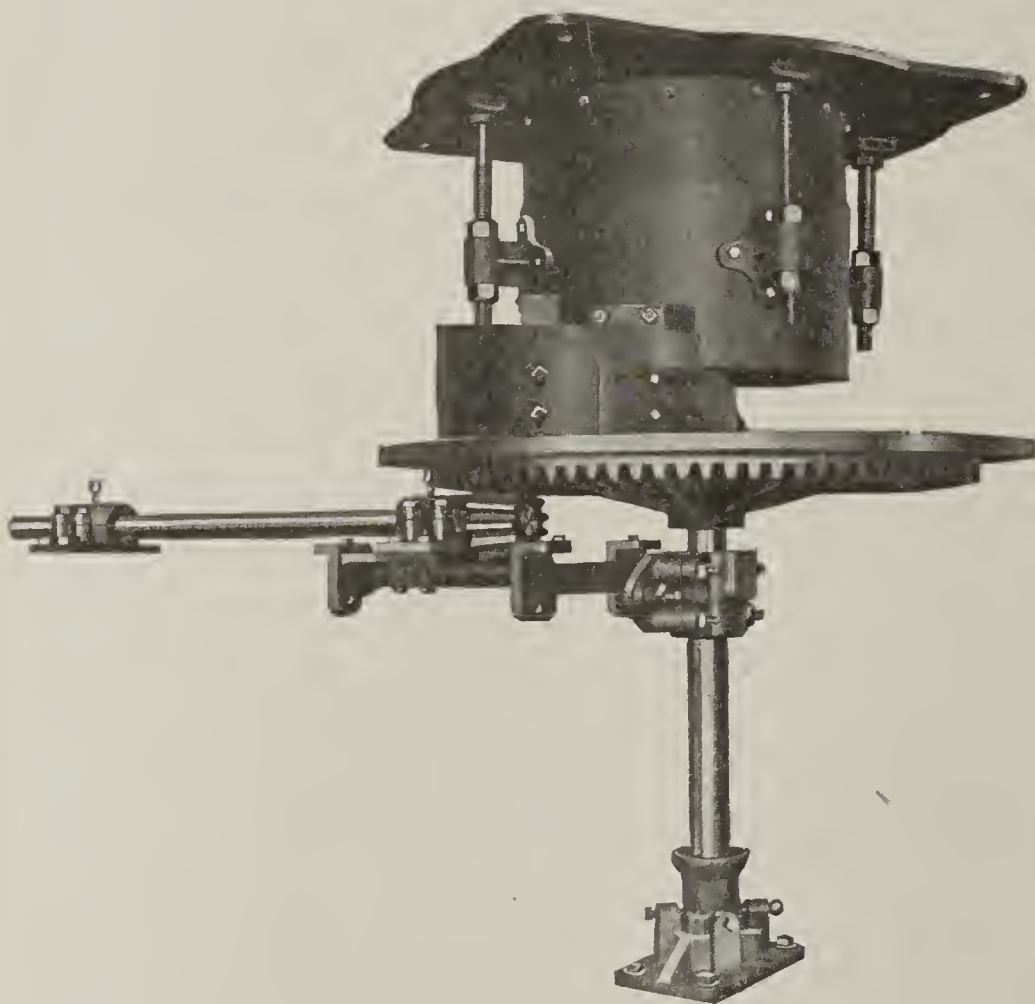
is one of our specialties—and in what line can we
do more good to the brick industry?



**The Columbus
Feeder**

SIZE A

Capacity up to
200,000
brick a day.



**The Columbus
Feeder**

SIZE B

Capacity up to
75,000
brick a day.

SIZE C

For feeding the smallest
quantity of coloring
matter or clay
up to
25,000 brick a day.

Send for Catalog.

The Ceramic Supply & Construction Co.
Contracting Engineers and Machinists. COLUMBUS, OHIO.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Written for THE CLAY-WORKER.

BRICK NEWS FROM KENTUCKY'S METROPOLIS.



THE WORST OF the very severe winter has passed into history and the arrival of more spring-like days has been quite helpful to the clay industry in many lines. There has been a decided increase in the amount of orders received, and the number of inquiries shows that there is a great amount of activity ahead in the building world this year.

The brick plants and other clay industries here report a very much more pleasing outlook than they have had in several months, and they are counting on a big business this year.

Plans are about completed for a large number of structures, and permits are being issued for a larger number of buildings than in months. The Business Woman's Club will soon begin the erection of a fine five-story building on Walnut street, to cost about \$90,000. Bids have been taken and the work will begin soon. Work on the new Underhill Street school is going ahead and the school board has decided to erect another colored school to cost \$40,000. Permits have been let for a number of brick apartment buildings, and the number of residences and other structures that are to be erected this spring is a favorable indication of the activity in this line.

Considerable new street work is to be done here this year. Contracts have already been let for a large amount of brick street and alley work, and there is in prospect a much better year in this way than has been seen here for some time. In other Kentucky cities there is much brick street work being let and completed, so that the indications in this line are pleasing now.

With the completion of much of the concrete sewer work here, there has now come a demand for considerable sewer pipe and the indications are that there will be a large demand for sewer pipe from this city alone. However, there is being let contracts for sewers in some of the smaller cities in the state, and there is every reason to feel encouraged over the demand for sewer pipe for some months at least, if not longer.

The city of Louisville has established a laboratory, under the direction of Thomas W. Board, of the city engineer's department, and in this department the various street and building materials for use by the city will be tested.

The P. Bannon Sewer Pipe Company find themselves very active now. They have noted a most pleasing increase in the demand for sewer pipe and they are much encouraged over the outlook for the present year. They say that they are receiving some orders for city work and look forward to considerable business this year.

The Burrell & Walker Clay Manufacturing Co. have found the favorable weather a factor for their betterment. There has been a much more active demand for clay commodities, and they are now operating their plant at Owensboro, Ky., after a closedown of some few months.

The Southern Brick and Tile Company are more actively engaged now than they were during the severe weather. Mr. T. Bishop is out of the city considerable now, keeping things moving with the tile industry.

The Louisville Fire Brick Works, whose plant is located at Highland Park, say that they are operating now on full time and that there has been a very much better demand for fire clay commodities in the past month or so. They feel that there will be at least a fair year, and they now have enough business on hand to keep them rather active in the above lines.

The Hegan Manufacturing Company have just finished the erection of a store front with faience tile made by the

Rookwood Pottery Company. It has many attractive features and is now one of the show buildings here. Some of the work is in raised fruit designs and is in the natural fruit colors.

The Louisville Brick Company are very busy, working overtime at their plant, and are looking forward to a year of considerable activity.

The Hydraulic Brick Company report that there has been a nice improvement in the demand for brick with them of late. They are now operating all their plants and anticipate a good demand this year for brick.

The West Point Brick and Lumber Company at West Point, Ky., have enough to keep them going and will soon begin operations at their plant, which was closed down at the beginning of the winter.

The Kentucky Vitriified Brick Company are much gratified over the prospects for the new year, as the orders are coming in now with an old-time vigor. They are very busy and say that the indications are such that they should have a good year for vitriified brick.

C. O. Smith is pleased with the indications and with the orders received for brick thus far. He looks for a very fair year's business. He has received some nice orders and looks forward to a year of very fair business.

Thos. McCullom & Co. are pleased with the outlook for the present year and have enough business on hand to keep them moving along in a very nice way.

At the office of the West Virginia Clay Products Company here the report is to the effect that the very severe weather had put a stop to operations with them in getting their plant in shape. They expect now to soon be in a position to rush the same and will then be able to get to work in an active and pleasing way.

The Louisville Pottery Company find the prospects for the spring demand to be very good. They are operating full time.

C. O. L.

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THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

VOL. LIII.

INDIANAPOLIS, IND., APRIL, 1910.

No. 4.

BURNED CLAY THE BEST BUILDING MATERIAL.

Its Employment in the Construction of Permanent Structures Means
Safety, Comfort and Economy.

WHILE BURNED CLAY products have been used for thousands of years and have always been the most substantial building materials, they are better appreciated today than ever before. There are good reasons for this appreciation and the consequent demand, for with brick, terra cotta, hollow block and tile, buildings can be erected

ing that most favorable condition of being cool in summer and warm in winter.

Too many builders today try to make their money give large returns from the very outset, not realizing that a permanent attractive structure is the real "money getter" in the long run, sure of good returns even after years of hard usage. Why do the average builders confine their efforts in home building to the cheap, shoddy dwelling or residence which can only be unsatisfactory to the tenant and of such short life that the money invested does not do its full share in returning to the owner the interest it should net? The answer



Handsome Brick Residence of Dr. George Edwin Hunt, Indianapolis, Ind.

that have the greatest elements of comfort, strength and beauty, three important essentials now in common demand in home building.

The beauty to be obtained through the use of these materials well selected and adapted is far ahead of any other material, and it is a well-known fact that good burned clay brick, terra cotta and tile have strength and durability. There is comfort in a well built brick house or building, for it is fireproof and sanitary, being free from dampness and possess-

is an easy one. They have not studied the real values of the different building materials and have been educated by contractors who can make a bigger profit out of the frame or cement house. The chief argument offered by contractors and builders favoring other materials has been that brick and tile are too expensive. To be sure, the first cost of a brick building or residence is greater than one made of the cheaper perishable materials, but not so much so as the promoters of the latter materials would lead us to think. Four to five

thousand dollars will pay for a substantial brick residence, which will ultimately save the investor much money. Such a structure needs little or no fire insurance and will not require painting or repairing because of its durability and the permanent beauty of the hard-burned clay ware.

Thousands of such structures have been erected in Indianapolis within the last few years, and the demand for them has been most astonishing to the architects and contractors in the Hoosier Capitol. Almost every residence erected includes walls or porches made of brick. The fad today seems to be to employ brick or hollow tile for the main walls, veneering the upper half or all of the structure with cement instead of the double thickness of brick.

Such is the style of the attractive residence of Dr. and Mrs. George Edwin Hunt, who are receiving the congratulations of their friends on the successful outcome of their home building efforts. The house is not only one of the most attractive of the many new houses that have been built during the past year, but it is notable for convenience and the practical character of the interior plan.

A feature with which the owners are well pleased is the

cochere. This center hallway divides the house east and west, the entire east side being devoted to a great living room. The dining room and culinary department occupy the space on the west.

The living room is a charming apartment well lighted and ventilated. The fireplace is its main feature, as it provides a charming inglenook. The cosy arrangement of the furniture adds to the homey effect of the room. Mrs. Hunt has been for several years making a collection of old mahogany, and the splendid pieces are placed to good advantage in the living room and hallway. The mural decorations of the living room and hallway will be in cool, deep tones of green. The woodwork is in pleasing harmony with the mahogany furniture. A delightful retreat is the reading room in the south end of the room.

The dining room is finished in old English, with furniture to correspond. The lighting fixtures in this room are particularly handsome, and the walls will be done in tones of yellow, to correspond with the art glass electrolier shades.

The kitchen offers many convenient features dear to the housekeeper. A built-in cupboard takes the place of a pantry,



View of Dr. Hunt's Residence in Course of Construction, Showing Use of Hollow Block and Brick.

commodious and well-equipped garage that adjoins the house at the southwestern corner. The garage might be, in fact, but a wing of the house, so far as appearances go. It is finished with a flat roof that will serve as a roof garden. The garden will have a pergola effect and will be screened from the street by flower boxes. The furnishings will be of hickory to carry out the rustic character of the garden. The garage is also fitted with work benches.

The house is fireproof, being of the hollow tile construction, a modern idea in house building that is as yet little known here. The air spaces serve to cool the house in summer, while there is additional warmth in the winter.

Architecturally the house is massive in appearance. The builders have adopted the idea, now quite popular, of placing the main entrance at the side thus giving the entire front of the house up to living room purposes. Another object in this style of entrance is that the front porch is given greater privacy and is reserved for the undisturbed use of the family. The entrance hallway is approached through a handsome porte

now so frequently eliminated in the best of the modern homes. Similar cupboards are to be found in the serving room. The concrete floor in the rear porch is an added improvement.

The arrangement of the second floor is most desirable, the chambers all being large and airy. The front room facing south has been furnished as Mrs. Hunt's boudoir, the color being gray and blue and the furniture the beautiful Circassian walnut. A practical lighting arrangement has been devised, a good feature being the light-encircled, full-length mirror in the closet door. Dr. Hunt's room, also facing south, will be finished in tones of rose, and in both rooms the draperies and furniture coverings will be of cretonne to harmonize with the tints chosen for mural decoration. The room of the daughter of the house is a charmingly girlish design with figured cretonne and dainty maple furniture. The bathroom is all in white, wall and floor being of tile. The bathtub is flush with the floor and was set out from the wall, for sanitary measures.

The linen and clothes closets are among the many co

venient features of this well-planned and splendidly-built home, which stands as a fine example of the sane and practical in modern home building. Brubaker & Stern, architects.

THE WAY TO PEACE.

JOHN HIRES HANS as a gardener. Hans is dissatisfied with his room, his hours, or his wage, and gives notice that he will quit if his demand for improvement is not complied with. For a week John and Hans discuss terms; they can come to no agreement, and Hans quits and seeks another job. John's right to decide whether he will comply with Hans's demands, Hans's right to quit if the demands are not complied with, no one questions. The matter concerns only John and Hans. The public is not interested. Hans may be without a job for months; only Hans and his family are affected. John may be without a gardener for months; only John and his family are affected. This is the famous "right of private contract" of which we hear so often.

But when the employer is a great corporation and the employe is a thousand workingmen united in a labor union, and the job which they jointly carry on is not the cultivation of a private garden but the conduct of a great highway on which the well-being of the entire community depends, this method of leaving the question between the two to be adjusted by "private contract" is absurdly inadequate. While the corpora-

to such a condition of affairs the principle of private contract is as absurd as to attempt to drive an old-fashioned coach and four along a railway track and across its culverts and its trestles.

The railway corporation has been created by the public to serve the public interests; and the public has some rights which the corporation and its employes are bound to respect. How shall they be protected?

There are three rights which are imperiled by labor wars, and which the law should safeguard:

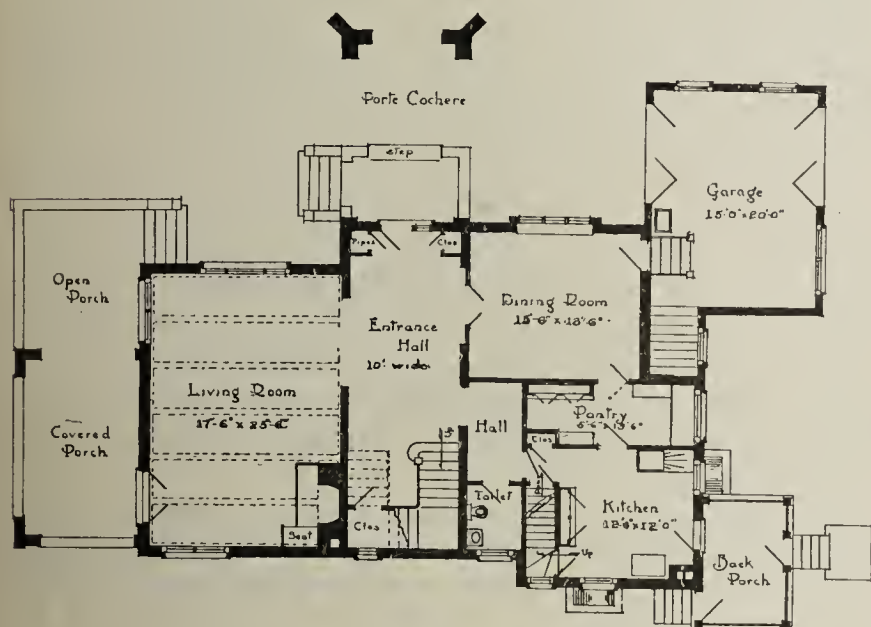
The right of the public to unimpeded transportation.

The right of the corporation to carry on that transportation for the public.

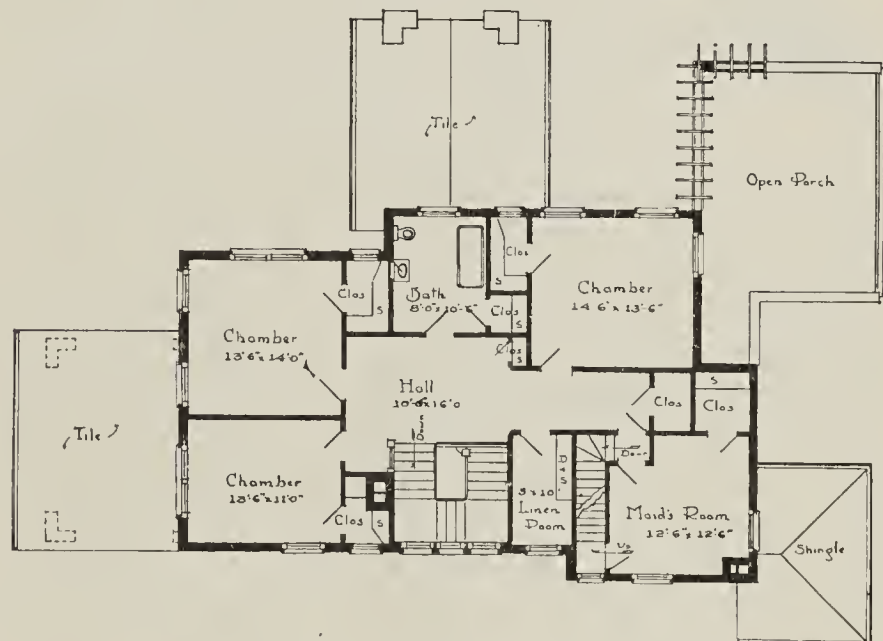
And the right of the employes to fair treatment from their corporate employer.

Protect the last, and the rest will be easily protected. At present the community does absolutely nothing to protect the employes' right to fair treatment. We leave the ten thousand employes of a railway to protect themselves by leaving their employment if they have a grievance, as we leave Hans to protect himself by leaving his job if he has a grievance. They have no other remedy; wonder not if they use the one we give them.

The law should allow the employes of any public service corporation to present their grievance to a public service commission or its equivalent; should direct the commission



First Floor Plan.



Second Floor Plan.

tion and the labor union haggle about the terms of a new contract the whole community watches with eager interest for the outcome. When they fail to agree, and employes, exercising "the right of private contract," quit, the transportation of a great city, perhaps of a great state, or congeries of states, is thrown into confusion. The public highways of the city in the territory affected cease to be available to the public. If John has no gardener, and consequently no strawberries from his own grounds in June, no one suffers but himself and his family. If the city railway corporation has no motormen, thousands of men and children have to walk from their homes to their offices and their schools.

The New York Tribune estimated that the threatened Western railway strike would have put out of commission 150,000 miles of railway and out of employment 125,000 employes besides those who were to participate in the strike, and would have affected disastrously the entire country west of a line drawn from Chicago to New Orleans. How many millions of men, women and children would have been involved in great inconvenience, some of them in tragic suffering, there are no statistics to show. "Bradstreet's" estimated the loss to the public in the Pullman strike of 1894 at eighty million dollars. In the coal strike of 1902 the railways alone lost about forty-seven million dollars in freight rates. To apply

to give an immediate and public hearing; should require the railway to accept and act on the finding of the commission; and on its refusal or failure so to do, should put the railway into the hands of a receiver, as it does in case of a failure to pay interest on its bonds. This would provide the employes with a remedy for real or fancied wrongs.

It should then make it a penal offense for the employes of any public service corporation to combine in any attempt to interfere with the regular work of the public service corporation, whether by leaving in a body or by any other method. And it should make it a misdemeanor for any individual to leave the service without adequate previous notice, say four weeks, the misdemeanor being punishable by fine or imprisonment or both. This would protect the right of the public service corporation to render, unhampered by strikes, the service to the public which it was created by the public to render.

These two rights protected, the right of the public to the public service would be sufficiently safeguarded.

Does this make of the employes slaves? Not at all. No more than the soldiers in the army or the sailors in the navy are slaves. No more than Hans is a slave; for Hans, if hired by the month, can not lawfully quit his employer's service without giving a month's notice. It simply takes the club

out of the hands of the interested employes and puts it into the hands of a disinterested tribunal.

Does it deprive the corporation of efficiency in dealing with its corporate problems? Not at all. If the directors prove themselves incapable of so managing the corporation that they can pay interest on the bonds, the law now takes it out of their control and puts it into other hands. If they prove incapable of so managing the corporation that they can satisfy the just demands of their employes—demands declared to be just by an impartial tribunal after public investigation—it is not unjust to take the management out of their control and put it into other hands. The rights of employes ought to be as well safeguarded by the law as the rights of bondholders.

Certainly the system which leaves the citizens of Philadelphia for weeks, and threatened to leave the citizens of all the states west of Chicago for weeks, without necessary transportation can not be defended on the ground that it is efficient. If any reader has a better plan than we here propose, we shall be glad to hear from him.—The Outlook.

Written for THE CLAY-WORKER.

BRICK NEWS FROM KENTUCKY'S METROPOLIS.



SPRING WAS ahead of time this year, and there has been a rush of orders for many kinds of brick, sewer pipe, tile and other lines of clay commodities, and there has been a busy time in this section with the manufacturers. They have been more active thus far this year than has been the case in a number of years, with the indications no less pleasing in so far as the future is concerned. Everywhere is heard pleasing reports and there has been a very interesting revival in the general demand for clay lines here.

The building outlook, locally, is better than it has been for several years, and there is now in sight at least several additional skyscrapers, aside from a large number of apartment houses, stores and dwellings. A fifteen-story bank building is to be erected at Fifth and Jefferson streets for the First National Bank and the Kentucky Title and Savings Bank; at least two new public schools, to cost more than a hundred thousand dollars each; a large power building on Market near Ninth street; a new bank building and a large number of lesser structures, making the building activity one of more than ordinary interest to the brick men.

There is more brick street work being let here now than has been the case in several years, and there will be other contracts to let in this city and in other Kentucky cities soon. Sewer pipe is now in big demand, and there has been orders received for considerable this spring. Tile and fancy brick and several other clay specials are in more active call than has been noted here for some months. In fact, there has been a general wakening on the part of purchasers in many lines to get busy.

Mr. Clark O. Smith, the well-known brick man, who was agent here for a number of concerns, and who did a large business, died from the effects of a stroke of paralysis several days ago. He was 74 years old, and was one of the best-known business men in the city. In his younger days he was prominently identified with the foundry industry, being one of the founders of the Lithgow Manufacturing Company. This concern went out of business years ago and for a long period he has been a brick manufacturer's agent. He was universally liked, having a large number of friends.

The P. Bannon Sewer Pipe Company say that they can not take any more orders for early delivery now as they are head over heels in work. The spring weather has been of the beneficial kind to them, and they are working hard to keep things in such shape that they can fill all orders promptly. There has been a more active demand for sewer pipe

this year than for some time past and the indications are of the promising kind.

The West Point Brick and Lumber Company, at West Point, Ky., has just resumed operations after a shutdown for several months. In the meantime they have increased their output to double the former capacity and are now installing a new rack dryer of the American Clay Machinery Company's make.

Thomas McCullom & Co. say that the prospects are very favorable for brick with them. They are now operating to their capacity and have enough orders on hand to keep them as active as they can possibly be. If they had a larger output it would not be difficult for them to dispose of the brick, as the demand has become very active in the past month.

The Kentucky Vitrified Brick Company say that there has been a most decided increase in the call for paving brick, and that they are as busy as they can be at this time. Orders ahead are plentiful, and the aspect of the situation looks as if there was to be a most gratifying year for street paving brick. They are operating to their capacity.

The report at the office of the Louisville Fire Brick Works, at Highland Park, Ky., is of the kind that gives encouragement. The demand, while not as brisk and as active as it could be, is nevertheless showing an increase that is pleasing at the present time. They have enough on hand to keep them very active and they feel that the increase, if not great, will at least be steady and they are satisfied with the situation.

The Southern Brick and Tile Company finds that there is no let-up in the demand for building brick and drain tile, and they are keeping as active as it is possible to be and say that there is no reason to feel that there will be any decline in the demand for the coming months.

The American Mosaic and Tile Company is completing a very handsome job in Jeffersonville, Ind., in ceramic mosaic work. It is a store front and is quite unique and attractive. They are keeping rather busy these days. In fact, they have had ample to do since the weather became more favorable.

The Louisville Brick Company is rushed with orders for building brick. The plant is operating at capacity and there has been a steady demand for their output that is giving them all they can do.

The Burrell & Walker Clay Manufacturing Company finds that the situation is showing steady improvement with them, and that there has been a more active demand for all kinds of clay commodities of late.

The West Virginia Clay Products Company has begun to erect its large plant at Charleston, W. Va., and report that they are making favorable progress since the opening up of the weather. They hope to be in position to begin manufacturing before many months and are anxious to get in trim to begin actively.

The Louisville Pottery Company reports fair increase in the demand for certain lines of pottery. It is a little early for the fruit jar season, but from the indications there should be a good year for fruit and they hope for a nice business in this line. They have ample to keep them operating on full time.

The Hydraulic Brick Company has about as much as it can in the way of orders for building brick, and is keeping the several plants in active operation. The indications are favorable for a nice business, and, of course, they will get their share of the same.

C. O. L.

Some men have figured it out that it is really the dollar that has gotten cheaper and easier to get instead of the necessities of life more difficult that makes this seeming increase in values. But we will bet these people never got any such conclusion as this from auditing the profits and loss accounts of the average business institution the last two years. In business it is just as hard to make a dollar today as it ever was. So, how can a dollar really be cheaper?



Written for THE CLAY-WORKER.

SETTING.

(Fifth Paper.)

WE HAVE ALREADY touched upon the setting. The cost depends upon the kind of bricks, the type of kiln, and the character of the setting. Common bricks set in up draft kilns without sanding should show a minimum cost, yet we have figures of cost ranging from 60 cents to 30 cents, including delivery to the kiln and tossing.

We have previously given contract figures of 34 cents for common and face bricks—all bricks faced in the kiln but not sanded.

In one district the contract price is 25 cents for setting and 18 cents for tossing, for a dry pressed product set flat and sanded. The labor conditions in this district, from the manager's standpoint, are not good. We have still higher figures than any of these on day work.

So much depends upon the conditions, and the care required in setting, that figures of cost are of no value for comparison except in plants in the same district running on the same product.

The most rapid work can be done in large up-draft kilns where the benches are wide and the kiln conditions—air, heat and light are the most favorable.

The worst kiln conditions are in the arched continuous kiln, and because of the unsanitary condition in such kilns, the open top continuous kiln is widely used in one foreign country.

The use of fans to circulate air into the compartments and keep the heat away from the men improve the air condition very much and their use is to be recommended.

The rectangular down-draft kiln is probably as fast setting as the up-draft kiln. It permits wide doors so that there is room for shifting cars and no excuse for not keeping a supply of bricks at the setting face at all times.

In the round down-draft kiln with the necessarily narrow entrance, there is not room for double tracks and where cars are used considerable time is lost in switching cars in and out.

An excellent plan where the yard arrangement will permit is to run the loads in one side and the empties out the opposite side, setting from either side to the center. This arrangement enables a continuous supply of bricks entering the kiln and no time is lost by the setting crew until they come to fill the center space. This center space can be filled from both sides starting at the center and setting either way toward the wickets.

Kilns.

We have more inquiries in regard to kilns than any other feature of the plant and very properly so.

The profits of the business hinge more directly upon the burning than any other branch of the work, and there seems

to be less knowledge of the proper kiln and its construction than any other part of the plant.

Wet Bottoms.

We wish to state as a first principle, and a most important one, that the kiln should be thoroughly drained, and insulated from ground moisture. It is not sufficient that there is no standing water in the under flues. Moisture will rise by capillarity through the kiln and flue walls to the kiln floor, and every pound of water evaporated carries away the value of 1/13 lb. of coal. But worse than this is the fact that the moisture keeps the bottom cold. Consider for a moment a boiler. No matter how much heat you put under it it never gets red hot so long as it contains water. A temperature of three or four hundred degrees is reached at most. Remove the water and the shell will become red hot in a few minutes. In greater or lesser degree any moisture which can reach the kiln bottom, will keep down the temperature in that part of the kiln. It has been proposed to pipe the under flues of the kiln to generate steam for power, from the waste gases—a feasible thing perhaps—but any one introducing it must make certain that the cooling effect will not be communicated to the kiln bottom by conduction and connection.

On one plant, air was circulated under the kiln floor, to be heated and thus introduced into the furnaces for combustion. This would insure high temperatures in the top of the kiln and correspondingly low temperatures in the bottom. The idea is wrong in principle.

Radiation Loss.

Our second principle would be insulation as much as possible against radiation loss. Mere shells of kilns cracked, and without any protection, require excessive fuel, and while the first cost may be low, the profits of the business are eaten up in loss of fuel. It is doubtful if we fully realize the radiation loss. We have been accustomed to assume this loss to be 10 per cent, but in periodic down-draft kilns this is too low. Prof. Bleininger's tests of industrial kilns show the following:

	Sewer Pipe Kiln. Pct.	Paving Brick Klin. Pct.	Bldg. Brick Kiln. Pct.	Ave.
Heat lost by fire gases.....	18.6	29.9	27.33	25.28
Heat taken up by ware.....	5.7	11.3	19.55	12.18
Heat lost by ashes.....	4.6	3.9	3.51	4.00
Heat taken up by kiln and lost by radiation.....	71.1	54.9	49.61	58.54
	100.0	100.0	100.00	100.00

Please note that 58 per cent of the fuel value was taken up by the kiln or lost by radiation. It is to be regretted that we have no data separating the last item.

However, a round down-draft kiln will have in its construction about as many bricks as the kiln will hold.

The temperature of the inner walls will be the same as the bricks, say 1100°C .

The outer wall will average 200°C ., let us assume, or the average temperature of the kiln wall will be 650°C .

The quantity of heat taken up by the kiln on the basis that it has as many bricks in its construction as it would contain, would be

$$650 \div 1100 = X \div 12.18, \text{ or } X = 7.19\%$$

If the kiln absorbs only this amount the radiation loss then is over 50 per cent.

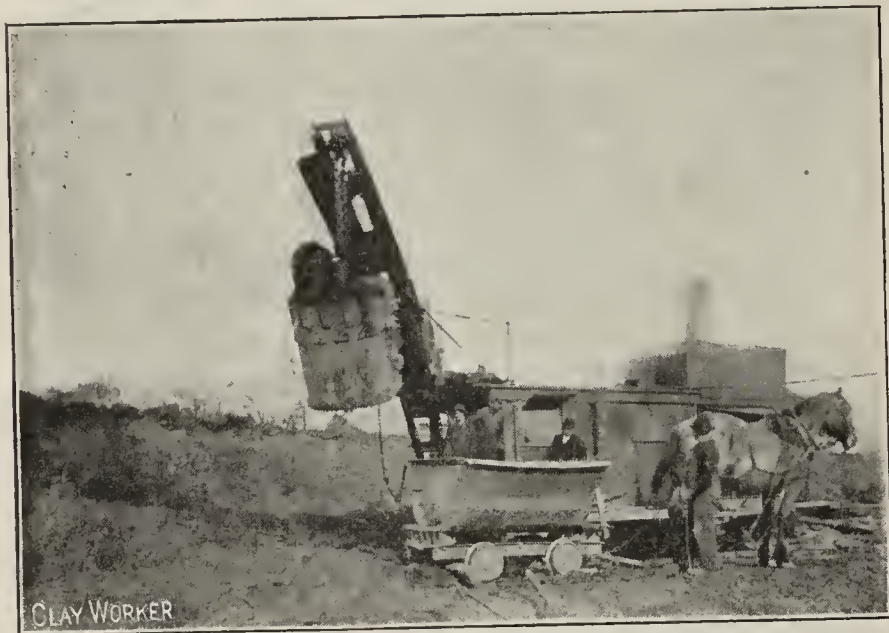
Suppose there are twice as many bricks in the kiln construction as the kiln would contain, then the kiln would take up 14.39 per cent, leaving 44.05 per cent for the radiation loss.

Even if the kiln wall were heated to the maximum kiln temperature throughout, on the last assumption it would take up only 24.36 per cent, leaving 34.18 per cent loss for radiation.

Take the building brick kiln which shows the least radiation loss, assuming that the brick in the kiln construction and kiln contents are as two to one, we have

$$2 \times 650 \div 1100 = X \div 19.55; \text{ or } X = 23.1 \text{ per cent absorbed by the kiln, leaving 31.8 per cent lost by radiation.}$$

They say figures won't lie, but either these do lie, or the profits of many brick yards are used to heat the outside air.



Twenty-Ton Shovel at Work in Clay Field.

The losses are undoubtedly excessive and proper kiln construction will greatly lessen them.

Furnace Power.

One of the items of importance in this connection is the relation of the furnace to the kiln content, which brings us to our third principle, namely, ample grate power.

Suppose we have a 30-foot kiln with only one small furnace, how long will it take us to reach a temperature of cone 10. Absurd! Impossible! Yet why? The flame temperature in that furnace is as high as we could get from ten furnaces. We need not admit any more air nor draw off any more gases than would be required for one furnace. We would need more time, perhaps, say ten times as long.

No, it will take one furnace, perhaps several of them, to supply the radiation loss. We have frequently seen yard conditions where the grate power was only sufficient to attain the required temperature under favorable conditions and with the best burner.

Under unfavorable conditions, the kilns would be fired for hours without any gain and all the fuel so fired would be a dead loss.

How large should the grate surface be? Unfortunately there is no data that is satisfactory. We have data for continuous kilns but none for periodic kilns.

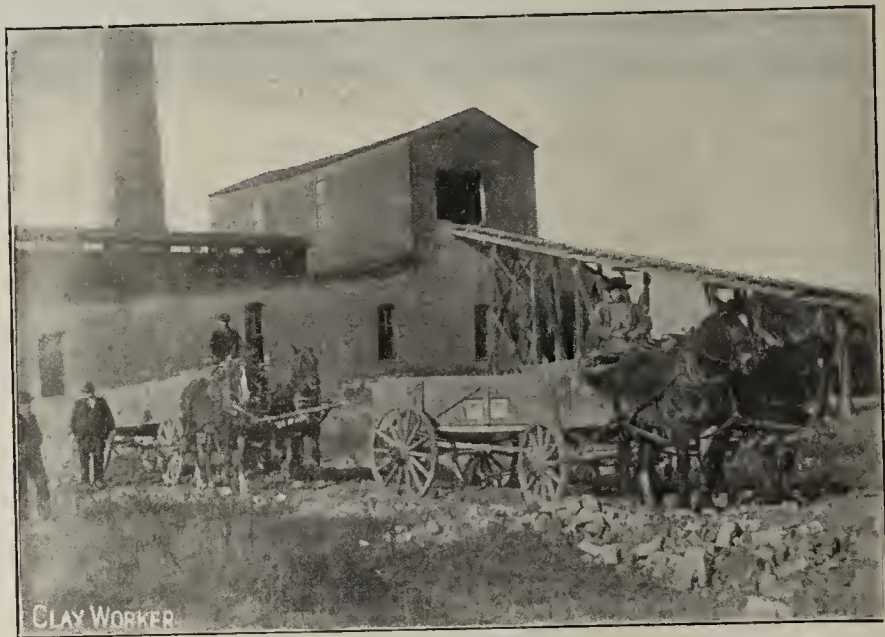
If we were figuring on a kiln in which a definite tempera-

ture is constantly maintained the problem would be simple, but in kiln work the temperature is advancing to a maximum at which heat the work is complete.

One prominent manufacturer whose opinion we value, said if he could he would have a ring of fire around his kilns—a complete circle of fire, and in principle he is right.

Comparing a number of kilns in this country and Germany we find the relation of the grate surface to the cubical content of the kiln varies from 0.7 per cent to 11.0 per cent. In this country the ratio is usually less than 1.5 per cent.

Starting with this as a basis for cone 1 temperature, we would increase the grate area 5/100 per cent for each cone, using a high-grade bituminous coal, and increase the grate area for inferior coals in proportion as the fuel value fell



Rear of Plant Showing Incline from Clay Field.



Clay Car Being Hauled Up Incline.

off from that of the high-grade coal. This is a minimum, and we see no harm in higher percentages.

This will give more grate area than will be found in 90 per cent of American kilns, but the adoption of such areas will lead to fuel economy.

Ample grate area will enable us to advance the heat as rapidly as the ware will stand; it will permit us to maintain any desired kiln atmosphere required by the ware and at the same time keep up the temperature; it allows a high ratio of efficiency of kiln temperature over radiation loss.

(To be continued.)

We are told of a postal deficit in big figures, but no mention is made of how much postal expenses might be reduced by boiling down the Congressional Records to readable size.

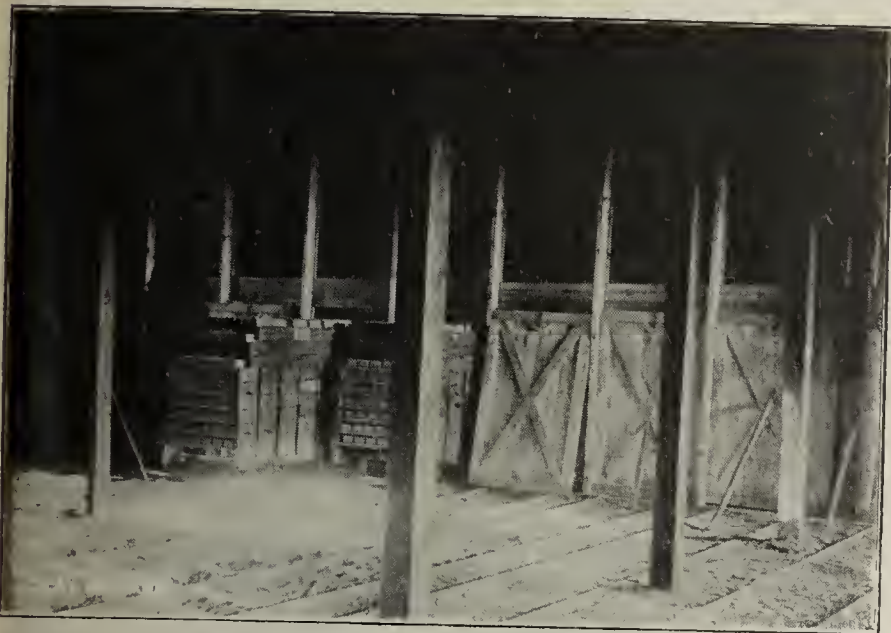
Written for THE CLAY-WORKER.

BURNING SOFT MUD BRICK WITH OIL.



MOST INTERESTING plant is located in the western part of the city of Detroit, Mich., near the Lonyo road, five miles from the center of the city proper. This plant, known as the Springwells Brick Company, is owned and operated by Walker & Frank, well known brickmakers in that vicinity.

Both W. T. Walker and C. F. Frank are very pleasant gentlemen, and enjoy showing visitors over their works. Leaving the Hammond Building, in which their offices are located, one can step on a Baker street car and in half an hour be at



Delivery End of Dryer.



Loading Brick for the Market.

through the employment of oil as fuel in the burning of their ware.

The plant has a daily capacity of 32,000, making on the average about the same number of bricks yearly as each of the other fifteen soft mud plants located in and about Detroit. The company uses a surface clay, which is very easily worked. The clay field averages ten feet in depth. The raw material is excavated with a Victor steam shovel, made by the Toledo Foundry and Machine Company, of Toledo, Ohio. One man and a boy run the steam shovel, thus saving greatly in the labor cost with the assurance of more clay mined every day than needed at the factory. The clay field is 1,000 feet from the plant proper. The clay is dumped into side dump Atlas cars, two-yard capacity, which are hauled to the plant on narrow gauge tracks by means of horses. Fifty cars are filled and emptied daily. The cars are taken up an incline by means of winding drum and cable and dumped near a Wellington Machine Company's pug mill. From the pug mill the clay passes through a Potts disintegrator and thence to a Potts brick machine. A Potts sand moulder is also employed. The pallets of bricks are placed on Atlas single-deck dryer cars and conveyed into a steam dryer of the company's own design containing eleven tunnels, holding nineteen cars each. Four hundred and eighteen brick are piled on each



Setters at Work in Kiln Shed.

car, thus making the capacity of the dryer close to 90,000. Seventy-eight cars of brick are made daily. The brick are dried with live steam during the day and exhaust steam at night. Thirty-six hours are required in the drying.

The brick are burned in regular up-draft kilns holding on the average 600,000 brick. These kilns are built up as needed, three generally being used of twenty arches each.

The power of the plant is furnished by means of two Erie boilers and a forty-five h. p. J. B. Wilson engine. This engine has been furnishing power for brick yards for seventy years, and is still doing good service. A small twenty-five h. p. engine is used for running the 12-foot American Blower Company's fan.

Oil is used in the burning of the ware for the simple reason that it gives the best results. The company's experience has been that oil is the finest fuel obtainable for use in open top kilns, being far superior to coal or other fuels and giving least breakage. It is better than gas in that you can make a shorter burn. It takes less time to burn with oil than with any other fuel. Coal is cheaper, and wood and gas higher in cost, the oil being a happy medium. The oil is shipped in from Toledo in tank cars, two to three tanks being purchased at a time. At the plant the oil is pumped from the car tanks into pressure tanks and supplied to the burners at kilns as needed by means of pipe lines. Small Lima burners

the plant, after a fifteen-minute walk from the car line.

Before describing the plant, it would probably be well to give the reader a small idea of the history of the yard. In 1900 a Mr. Hall erected the plant and operated it under the name of the Hall Brick Company. In 1904 he sold out to the Springwells Brick Company, named after the township in which it is situated. It was later purchased by Walker & Frank, but is still operated under the old name. Mr. Frank is a pioneer brickmaker, having been in the business since 1873. He managed the old Hall yard before the Springwells Brick Company was formed and has been interested in other plants as well. He not only has his interests in the present plant, but also owns the Wagner brick yard at Dearborn, ten miles from Detroit.

The Springwells plant is unique in many ways, varying somewhat from the ordinary soft mud plant principally

are used. Two tanks of oil are required for the complete burning of fifteen arches, the brick being set forty-six high the full length of the arch, which is thirty-four feet long. With oil as the fuel, the company is assured of 95 per cent good, hard brick to every burn, while with other fuels the percentage of light-burned brick would be much greater.

The company's selling territory is mostly local with a steady demand, the price being \$6.00 per thousand on car f. o. b., and in the city the purchaser paying cartage.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



SEVERAL of the local brick plants which had closed down during the winter season have again started operations and are now operating at capacity. Most of them have seized the opportunity to make needed repairs and to improve their plants and place them in the best possible shape for an anticipated summer of heavy brick demand. There is a splendid demand for building brick this spring and indications point to some nice business early in the season. According to official reports from forty-three of the leading cities of the country, Toledo stands fourth in percentage of gain in building operations for the month of March, showing an increase of 103 per cent over a year ago. The total permits for new structures in Toledo during the month of March aggregated \$555,790 as against \$261,490 in March, 1909. Even these figures do not represent the true gain so far as the brick business is concerned, as the list of permits contains practically none of the large brick consuming jobs that have been contracted for and some of which are already under way.

Despite this splendid showing there is a note of disappointment coming from some of the local concerns which had hoped for even better business. They report that in Toledo proper there is not the activity in building circles that they had anticipated, but that there is a very heavy call for all kinds of brick from the surrounding territory. Many orders are coming in from various Michigan points, from which orders have never been received before, and the same is true all over northern Ohio, so that the outside business has in reality exceeded early anticipations. There is a good demand for all the brick that local plants are able to turn out, and some have increased their capacity to meet this call. In Toledo it was expected that a boom would be on as soon as the frost was out of the ground, and that the big call would come earlier than usual. This has not proven the case. While there is still a large amount of inquiries and an unusual volume of figuring and a number of very large contracts have been closed, there seems to be no particular rush about getting the work done. Prices are ranging a little higher than last season. There is a very wide range in quotations reaching all the way from \$6.25 to \$7.50 for good building brick, much depending upon quality. Pressed brick are finding a ready market, although there has not been the rush which some had expected.

Paving brick are moving actively and the prospects are that the season will bring more than a normal amount of trade in this line. There will be a liberal amount of municipal work, much of the legislation for which has already been completed, and some of the work now under way. Indications point to a heavier consumption of paving block in Toledo this summer than for many years, and the same is true in many of the smaller cities and towns of northwestern Ohio. A number of paving contracts have already been let in Toledo, the work to begin at once. There is also a very fair prospect for the sewer pipe industry, conditions at present being satisfactory. Farmers are doing more tiling than usual this spring, taking advantage of the dry weather to get

it in the ground in the best possible shape. Municipal work is showing considerable life and capital being much more plentiful there is none of the difficulty which was experienced last year in disposing of bonds and other municipal securities.

The Collinwood Brick Company of Toledo has made some extensive improvements to its local plant, which will result in a large increase of capacity. Another machine has been added which, it is figured, will enable the concern to turn out about 6,000,000 more brick than heretofore. The concern reports a splendid out-of-town business and a ready demand for all its product. W. A. Howell, secretary, has returned from a brief business trip to Detroit in the interest of his company. He says that brick business in that section generally is at high tide and all the local concerns are finding themselves rushed to care for the business that comes in. The Collinwood company has recently opened commodious offices at rooms 630-631 in the Spitzer Building, Toledo, where the business end of the affairs will hereafter be conducted.

Articles of incorporation have been filed by the Fox Clay Products Company, which, it is understood, will take over the old Fox Clay and Brick Company of Toledo. The company is formed for the purpose of manufacturing, buying, selling and dealing in brick, drain tile, building and paving block, and other building and paving materials produced from clay,



View of Springwells Plant, Mr. Frank on the Left.

lime, sand and kindred products, and with authority to buy and sell real estate and machinery necessary for the manufacture of these products. Its authorized capital stock is \$30,000 divided into shares of \$100 each. The Fox Company has been in business in Lucas county at Toledo for a number of years. The new company has closed a deal for the purchase of sixty-eight acres of valuable clay land on Lagrange street and Detroit avenue, with frontage on the Terminal Belt and Michigan Central Railways. Announcement is made that the institution will be made one of the biggest tile and hollow brick mills in the country. George H. Fox, of Toledo, will be secretary and manager. Mr. Fox this week contracted with the American Clay Machinery Company for a large amount of new machinery, and also closed a deal with Joseph L. Skeldon for a 150-horse power plant. The company has contracts on hand for 6,000,000 brick. Work on six kilns, brick ovens and the general plant will be started at once and it is hoped to have a force of at least fifty men at work making brick within a few weeks.

Service Director John R. Cowell, of Toledo, has announced war on poor sewer construction in that city. "Days of bad sewer construction are past if I can do anything about it," said he. "If our inspectors are asleep while some contractor skins us, I want everybody to know who they are." With this object in view he has promulgated a rule that the name

of every contractor who does poor work for the city, and the name of the city inspector on such work, shall be posted in the city engineer's office for reference. Future contracts will be awarded with this list in view. He has asked for the appointment of more inspectors in the engineering and building departments.

The Toledo workhouse management finds itself up against the proposition of "making brick without straw." For some time the institution has engaged its volunteer army in the manufacture of brick, but there is a probability of enforced idleness, or a change of occupation. Suitable clay has become scarce in the vicinity. An area of clay was discovered on Belmont avenue, but as twelve cottages belonging to John Mitchell stood on the clay, an agreement was made to raise the houses. This work is being done by the prisoners and the clay turned over as compensation.

The highest premium secured on paving bonds in Ohio during the past six months was secured at Lima recently, when Weil, Roth & Co., of Cleveland, bid total premiums of

Written for THE CLAY-WORKER.

ST. LOUIS BUILDING NEWS.

ALL BRANCHES of the clayworking industry have been busy since the pleasant weather of the past few weeks. The plants are in good shape to take care of their business and are working at their limit to take care of the business which was booked during the latter part of the winter. Orders are coming in nicely for future business and there is every indication for a good normal call from now on.

The brick manufacturers have plenty of stock on hand for immediate calls and are getting all the orders that they had on hand shipped out. Orders have been most satisfactory thus far. The outlook ahead is most encouraging.

The sewer pipe business is getting better all the time and there is every indication that this line will increase materially owing to the large amount of sewerage that is being done. The prices, however, are not at all entertaining to the manufacturers.

The fire brick business is quiet and the outlook now is that business will not get much better for a while at least. The general tone of the market is optimistic. Quite a large number of big orders are in sight, but they are a long time materializing. If the many projects that are planned develop, there will be some good sized orders placed, but everything is now uncertain.

There is a good demand for paving brick reported. Many orders have been booked and a great many more are in sight, for the city intends to do a lot of paving this spring and summer and paving brick will be in good demand.

While the building operations for March, according to the report of the Building Commissioner, showed a falling off in totals, as compared with the corresponding month last year, yet by a new system which has been inaugurated at the beginning of March, clearly showed in just what class of structures this falling off occurred. It decidedly shows that in certain classes of structures there is a great activity, and also shows that building operations are healthy.

There was a decided increase in the number of private homes over the same month of 1909. More than 180 of these were of brick and cost less than \$20,000. Three others cost more than that amount. The aggregate amount of money which will be put in homes as called for by permits issued in March is more than \$550,000.

The tendency toward the construction of flats and apartment houses or "tenement houses," as all are termed now, was very noticeable in the last report of the building department, and the figures considerably exceed those of a year ago.

The general prediction is for continued activity for the month of April and well into the summer.

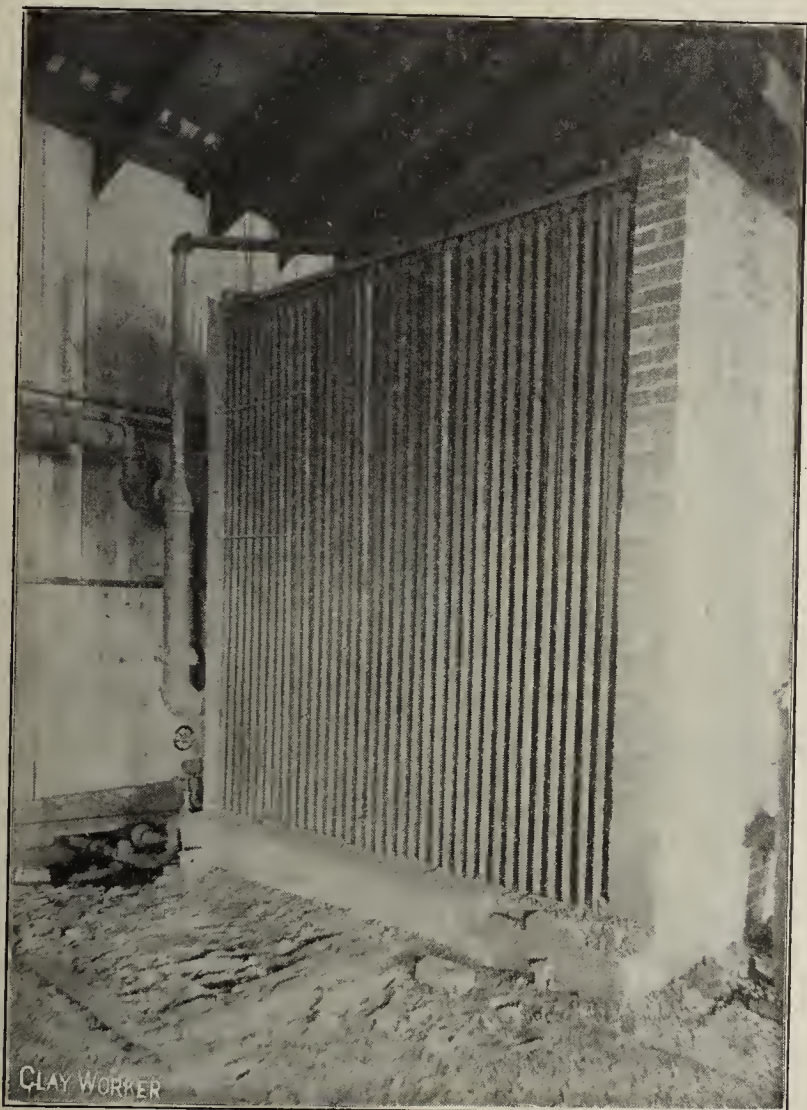
The Christy home place in this city, containing about 7,600 feet front, located in the Morgan Ford road, just north of Gravois road, has been sold by the Laclede-Christy Clay Products Co. The beautiful house of Mrs. Christy, containing twenty rooms, with garage, etc., costing \$35,000, is on the property. The ground is covered with beautiful forest trees and shrubbery. It is a part of the Christy property. It is a part of the property which was sold some time ago and on which over one hundred houses have been built.

George E. Jones, secretary of the Evens & Howard Fire Brick Co., says the pipe business is better than it was and the demand is increasing. The fire brick trade is quiet and from present indications will remain so until some of the many projects become realities. Then he looks for a betterment.

Walter Grath, of the Illinois Supply and Construction Co., says business is still rather quiet, but the outlook is good.

The Anthony Ittner Brick Co. is doing a nice business Mr. Ittner says. Their plants are now all in operation and are getting out brick and are filling orders that were ordered when the weather was bad and could not be used which now are wanted and wanted immediately. There is every indication, he says, that the present year will be a good one for the brick manufacturers.

A SAINT.



Steam Coil Radiator at Front End of Dryer.
Springwells Brick Plant.

\$3,982.31 for \$88,200 worth of 5 per cent bonds, of average maturity in five and a half years. The city has been having considerable trouble in securing funds for paving, owing to a recent ruling of the City Solicitor that the Educational Board could not be drawn upon for paving in front of school property, but that it must be paid by the Board of Control out of city funds. This has exhausted the resources of the city for this purpose and it is announced that all paving petitions will be turned down until July 1, and that projected work will not be completed for some time.

Contracts aggregating many thousands of dollars have recently been awarded by the Toledo Board of Control. Among them were the repaving of City Park avenue with vitrified brick, Walters & Tansey, \$7,565.50; Columbus street, vitrified brick, Walters & Tansey, \$4,867.17; Buckeye street, Ohio Paving Co., vitrified brick, \$4,507.12; Valentine street, vitrified brick, C. H. Peters & Son, \$6,912.80; Orchard street, vitrified brick, Ohio Paving Co., \$8,337.56.

T. O. D.



Clayworking School in Sweden.—The clayworking school in Sevedala started the course for the brick yard superintendents on Jan. 15, and fourteen parties are enrolled in this course.—*Lerindustrien*, No. 1, 1910.

Bunzlau Stoneware.—Dr. W. Pukall describes the results of the experiments which were conducted in the Bunzlau Ceramic School in connection with the better grade of stoneware. A good glaze, which also can be used on ordinary stoneware, is composed as follows: Feldspar, 111.2 parts; Kaolin, 51.6 parts; flint, 114.00 parts; whiting, 70.0 parts; magnesite, 8.4 parts. This glaze flows very easy and is clear and bright at cone 4.

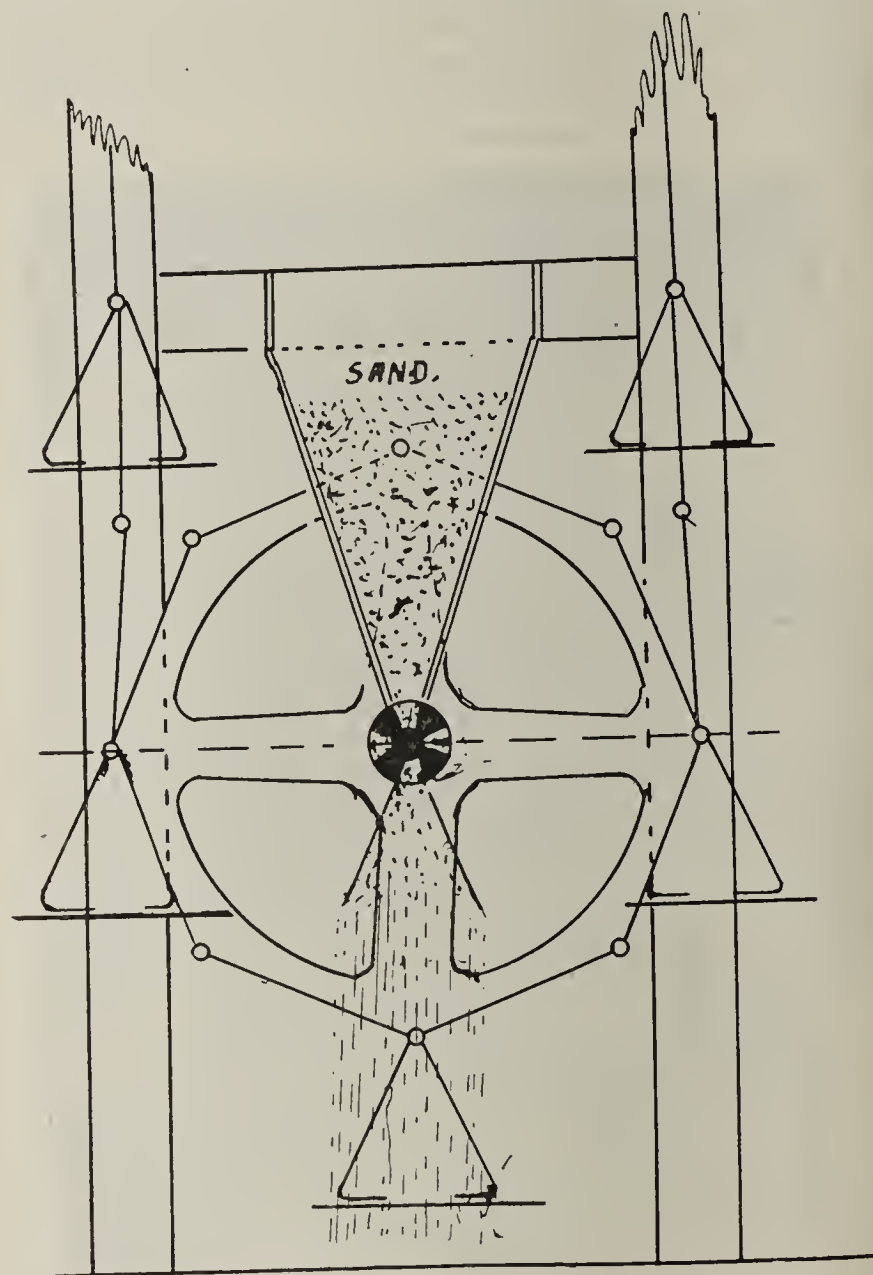
A glaze which can be used both on green and biscuit ware, and which is therefore the proper glaze for ordinary stoneware is composed of: Feldspar, 205.72 parts; kaolin, 98.04 parts; flint, 247.20 parts; magnesite, 31.92 parts; whiting, 25.00 parts.—*Sprechsaal*, No. 4, 1910.

Kiln for Burning Magnesite Brick.—The first kilns for the burning of magnesite were the ordinary round kilns, built on the same principle as lime kilns. On account, however, of the very high temperature which is necessary to burn this material, it is necessary to use a blower. Later a continuous kiln in which the best nut coal was burnt, was next used for several years. The kiln which Engineer Lessius erected, was again an improvement, and also the gas fired kiln of Mendheim was better than the old style kiln. The Hungarian Association of Magnesite Industrie is now conducting experiments to burn the magnesite at their Nyustyear factory in rotary kilns and the first results have been very promising.—*Tonind. Z.*, No. 4, 1910.

Mixing and Grinding of Whiteware Bodies.—There are many small points in the mixing and grinding of whiteware bodies which should be observed carefully in order to obtain satisfactory results. One of the first things to determine after the clay reaches the pottery is the percentage of moisture in the clay, so that in weighing out the quantity, due allowance is made for the excess of water which the clay may contain. To increase the capacity of the blungers and ball mills, it is very desirable to have all clays in very small lumps or in powdered form. The grinding of ball clays and china clays through a dry pan or disintegrator before they are put into the blunger or ball mill often increase the capacity of this department 50 per cent. The grinding time for two tons of material is twelve hours. When the flint and feldspar are ground together in a ball mill, it is a good method to add about 100 or 200 pounds of ball clay to this mill. The balance of the clay can then be added to the blunger. A good white body will need on every ton of material about two pounds of cobalt sulphate. The sulphate is precipitated in the body with ammonium. The distribution of the cobalt in this method is far more complete than by the use of unsoluble cobalt mixtures. Care should be taken that the water which is used for the manufacturing of the ware and for the mixture of the body is free from lime. The edges of the ware will show sulphate salts, which is injurious to the glaze. A quick drying of the ware and the finishing of it dry in place of in wet state will often overcome the troubles.—*Keramische Rundschau*, No. 1, 1910.

Chamotte or Schamotte.—There is some difference of opinion regarding the proper writing of the word "chamotte," which means fire resisting products. According to J. J. Deplaz the word has its origin in the little village of Tschmott, where the springs of the river Rhine are located. In this village we will find today fireplaces which were erected in 1688, and the material in that section is all called "Tschmot." In the course of the centuries past, that name has been many a time changed in writing and the present word "chamotte" is used universally all over the European countries.—*Tonind. Z.*, No. 6, 1910.

Sanding Machine for Brickcarriers.—Many brick carriers have the fault that the brick will stick to them, and in order to overcome this trouble sand should be used. An automatic arrangement for sanding of the carrier can be arranged as



Sanding Machine.

shown in the illustration. The main apparatus is a funnel shape sand retainer. The shaft of the carrier has a wood plate which is divided in four parts. Between each movement of the carrier, and when each board is at the lowest place, a small quantity of sand is released from this wood plate on the axle, and the sand will fall all over the board.—*Deut. Topf. & Z. Z.*, No. 6, 1910.

Kaolin and Fire Clay in British India.—The Rajmahal Mountains have been investigated by Murray Stuart in an endeavor to establish the existence of kaolin, clay and glass sand in these mountains. Many different veins of such materials have been discovered. Kaolin has been known for some years, and has been worked since 1902 at Mangal Hat, and is now used also by the Calcutta Pottery Company for the manufacturing of porcelain and white ware. The feldspar kaolin is not very plastic and stands a higher temperature

than the kaolin from the Damuda stone formation.—Keramische Rundschau, No. 4, 1910.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE RECORD of March building activities in San Francisco shows an increase of about \$200,000 over that of February. This is by no means the improvement that was expected, and dealers in materials now say that the demand is actually less than it was a month

ago. Several facts are held responsible for this condition, but all may be summed up in the statement that the city is still suffering from the after effects of the disaster of 1906. The exaggerated valuation of city land is one factor which delays building, down-town real estate being actually higher than before the fire. Owners of buildings are finding it difficult to get tenants at remunerative figures, and there are accordingly few private parties who care to put up expensive structures. Another feature is the granting of another year of existence to the wooden buildings erected within the fire limits, the time for their destruction being put off until May 1, 1911. Many of them were replaced during the winter, but further work of this kind will probably be delayed.

The Southern Pacific Railroad Company has inaugurated a freight service that is especially beneficial to the local brick dealers and other shippers who do business within a 200-mile radius of San Francisco. The service is a less-than-carload distributive one out of San Francisco, by which all freight delivered at the local yards before 4 o'clock in the afternoon is scheduled to reach all points within 200 miles of this city before twenty-four hours have elapsed. The new schedule will aid both the San Francisco dealers and interior consumers, and is certain largely to increase the shipment of brick out of San Francisco.

The market on common brick remains in about the same depressed condition as before, with prices badly broken and general pressure to sell on the part of dealers and manufacturers in this vicinity, though there is a good outlook in the interior of the state, and a good many new manufacturing enterprises are being started at points which are distant from the largest sources of supply. Pressed brick, which was strong up to a few weeks ago, has weakened a little with the decrease in demand, and manufacturers are compelled to find their principal outlet in the interior. A better local demand is expected, however, during the summer months.

Sewer pipe is now attracting considerable attention, as practically all the towns in the state are planning to put in more or less new sewer during the summer, and several good sized contracts have already been placed. The Healy-Tibbets Construction Company has taken the contract for complete reconstruction of sanitary and storm sewers in San Francisco between Market and Folsom streets, Second street and the bay. The storm sewers are to be of the ordinary type like others of concrete lined with brick. Plans are now being prepared for more work on this order, and bids will soon be called for on work amounting to nearly \$1,000,000.

The Vallejo Brick and Tile Company, Consolidated, has completed work on its 16-chamber continuous kiln, which was started some time ago, and the plant is now in shape to meet all demands during the summer. Some paving brick are now being made and a large quantity of seconds is used for building purposes in San Francisco.

The Pureclay Brick and Tile Company's kilns are not yet operating, the plant being closed for over two months past, and from present prospects it will remain idle until the middle of summer.

The Ione Fire Brick Company, whose plant at Ione, Cal., has been running intermittently for the last two or three years, has levied an assessment of \$25 per share on its capital stock.

Maxwell A. Metzner, a clay manufacturing expert formerly

employed by a large firm at Perth Amboy, N. J., has brought suit against L. Lindsay of the Western Art Tile Works of Tropico, Cal., for \$20,000. He alleges that Lindsay misrepresented the profits of the company in order to induce him to leave his former employment.

The California Pressed Brick Company has practically completed its plant at Niles, Cal., and is getting some good orders for its output. The continuous kiln has been running for some time, making sewer brick for Niles and other neighboring towns. Chas. Gould, recently from the Ohio brick district, has been put in charge of the operation of the kilns.

J. G. Cummings, of Oroville, Cal., offers a brick yard for sale.

J. L. Hornsby, of Porterville, Cal., has located a good clay bed near the railroad just outside of Porterville and is now organizing a company to build kilns and plant for the manufacture of all kinds of brick. The officers expect the plant when complete to have a daily output of 20,000 brick. Porterville is expected to give orders to this concern for two or three million a year and the surplus is to be shipped to other points in the southern part of the San Joaquin Valley.

The Remillard Brick Company, of Pleasanton, Cal., is installing a new tank and making other extensive improvements in the plant.

The San Luis Brick Company, of Watsonville, Cal., is building a number of new dry sheds which will have a capacity of 150,000 brick. The company is also installing new machinery, dry pans, moulds, etc., and when all the improvements have been completed the plant will have a capacity of 25,000 bricks a day. The plant is shipping many bricks to the neighboring towns and has a contract on hand for supplying 200,000 bricks for a new sugar plant which will soon be erected in Watsonville.

The British steamship "Arctic Stream" has arrived in Portland, Ore., with 205,000 fire bricks from England.

An ordinance has been passed by the Los Angeles city council prohibiting brick yards on Pico street near Arlington avenue within the city limits. The city council has stated that the western part of the city has always been the residence portion and that the brick yards spoiled the beauty of that region. This edict practically means the confiscation of the property of the Pico Heights Brick Company and the Hubbard & Chamberlain Brick Company. The measure has not yet obtained the signature of the mayor and is believed to be invalid.

C. W. Hunter, a building contractor, has joined with A. F. Miller of El Paso, Texas, to form a company to manufacture brick at Phoenix, Ariz.

S. W. Bruce of El Paso, Texas, has been investigating the shale deposits near Tucumcari, N. M., with a view to establishing a brick plant in that vicinity. He is also organizing a company to build kilns near El Paso.

The Southwest Brick Company, of Inglewood, Cal., started its works April 4 and will run steadily through the summer, the intention being to keep the plant going until next December.

T. R. and W. L. Ellerbeck, promoters of the Utah Fire Clay Company of Salt Lake City, have purchased 4,000 acres of land near Grantville, Utah, on the Northern Pacific Railroad. The clay beds have been closely examined and the materials tested and the promoters say that they have located on one of the best clay deposits in the country.

A. T. Zeek, of Hood River, Ore., who has been engaged in the manufacture of bricks for several years near the town, has purchased five acres of land from Roy Woodworth on Indian Creek, Ore. He will abandon the old works as soon as the plant has been completed on the new site. He will install a stiff mud machine in the new plant and will turn out a good quality of pressed brick.

The Glazed Cement Sewer Pipe Company of Tacoma, Wash., has secured a site of land on the Whatcom Creek near Bellingham, Wash., for the erection of a plant.

San Francisco, Cal.

SUNSET.



like the chain-mail of the knights of o'd. At Martigues, even, we found one of the most curious of these, made a hundred or more years ago and still in service, or it was until I bought it for two francs and have since paid twenty in storage and freight in order to claim proprietorship of this lovely piece of peasant pottery.

We sailed out into the strawberry fields of Roquevaire, where a little strawberry of the most peculiar flavor is grown for the market almost the year 'round and shipped in tiny pots with a pointed base like the drinking horns and the stirrup cups of romance.

On toward the real Riviera—the resplendant Cote D'Azur of the French, the world's most chic playground—we passed one day in the great ranges where are grown the finest capers in the world; the natural accompaniment of a boiled leg of mutton. The capers are shipped through the great port of

"IT WAS SEPTEMBER and it was Provence." These are the magic words of Daudet which draw thousands to the French shores of the Mediterranean in the first days of autumn.

Our Montmartre studio was rented for a trimestre, and the automobile had just been put into condition at the factory, so there was really no reason why we should not go south at once to the land of la cigale, even though the fashionable season had not begun.

We made a bee line for the blue Mediterranean, and loafed along a matter of four months through the glorious vintage fields of France. We took in a Provencal bull fight in the old Roman arena at Arles, with real toreadors and real bulls, but the whole a burlesque of the bloodthirsty combats of Spain. We ranged the whole length of the marvelous Mediterranean coast line, from the Rhone to the Italian frontier, and lodged many a night in some tiny Provencal hamlet where those of our ilk were seldom seen. It was thus at Les Saintes Maries, where were exiled the Three Marys of Judea; at Les Baux, a mountain Pompeii in France; at Martigues, "La Venise Provencale," where we ate bouillabaisse chez Chabas, the famous fish stew of Provence, sung by Thackeray and thus made famous abroad, though indeed the novelist knew it only in a poor imitation form in a Paris restaurant. Martigues was indeed our headquarters for a long time, and we journeyed out by road fifty, a hundred or a hundred and fifty miles periodically, and came to know the country side of Provence as perhaps few could have known it in so short a time before the advent of the automobile.

Immediately the land of the olive was reached we came to a belt where the forms of all manner of earthenware pots and jugs were most original and fascinating. There were the Catalan porro, from whose nozzles the peasants drank wine or water by holding it high above their heads and letting a tiny stream trickle into their open mouths without ever touching it with their lips; then there were the great oil jars—like those of the Arabian Nights, only different—whose great size and weight made it necessary to surround them with a net of cordage

Marseilles to all corners of the earth, but in ugly glass bottles with not the least semblance of artistic form in their make-up. Progress makes for utility, no doubt, but at a sacrifice of much that was beautiful which went before.

Another pleasurable voyage of discovery was to the perfume makers of Grasse and Cannes, and another to the potters of Golfe Juan. Golfe Juan, a dent in the Mediterranean coast line between Cannes and Nice, away back in Roman times, gave birth to a pottery industry which was famous throughout the empire. Its successor, today more varied in its output and more widely known, clings tenaciously to the same little corner of paradise which the Romans knew as the Vallis Aura.

Back from the coast runs this "golden valley" of the Romans for a dozen miles, and from the water edge up to the mountain background, the foothills of the Maritime Alps is one vast battery of pottery kilns and factories.

The chief and most splendid of all is the establishment of Clement Massier at Golfe Juan itself, close by the high road over which scurry an endless stream of tourists in the season



The Marmites and Caseroles, After Being Shaped, Are Laid Out in the Sun to Dry Under a Natural Heat for a Time.

in electric cars, sight-seeing coaches and automobiles. Massier's fame is widespread, and samples of his work may be seen in the great national museums of Germany, Russia, England and France.

Opposite Massier's establishment is an historic monument that is often overlooked by the hurly-burly rush of the season's tourists. We ourselves had passed it by unknowingly many times, but this time we took in the full significance of the simple marble shaft which commemorates the arrival of the great Napoleon on his return from Elba, when he set out to kindle the European war flame anew. It bears but the brief inscription, but all-sufficient to those who know their history: "Souvenir du 1er Mars, 1815."

The potteries of Golfe Juan and Vallauris turn out a great range of products. At Massier's palatial factory are made only the most luxurious forms of vases, jugs, etc. The master craftsman himself, by some lucky stroke, found the clays of the neighborhood suitable for obtaining the metallic glaze which had been a lost art for centuries, and now his elaborately designed jugs and platters are red after having been coated with a sort of clay of a metallic base which gives the rare effect commercially known as luster.

Massier, working alone, a mere potter's hand, at an early age developed a talent for drawing and design. He was seen rolling alone and observing closely the ceramics of the great museums; working steadily the while at his art, he produced forms that soon brought him to the attention of the Paris art world. Gerome, Cabanal, Berne-Bellecour and Puget de Chavannes became interested in his efforts and encouraged him to push his projects farther, until finally he



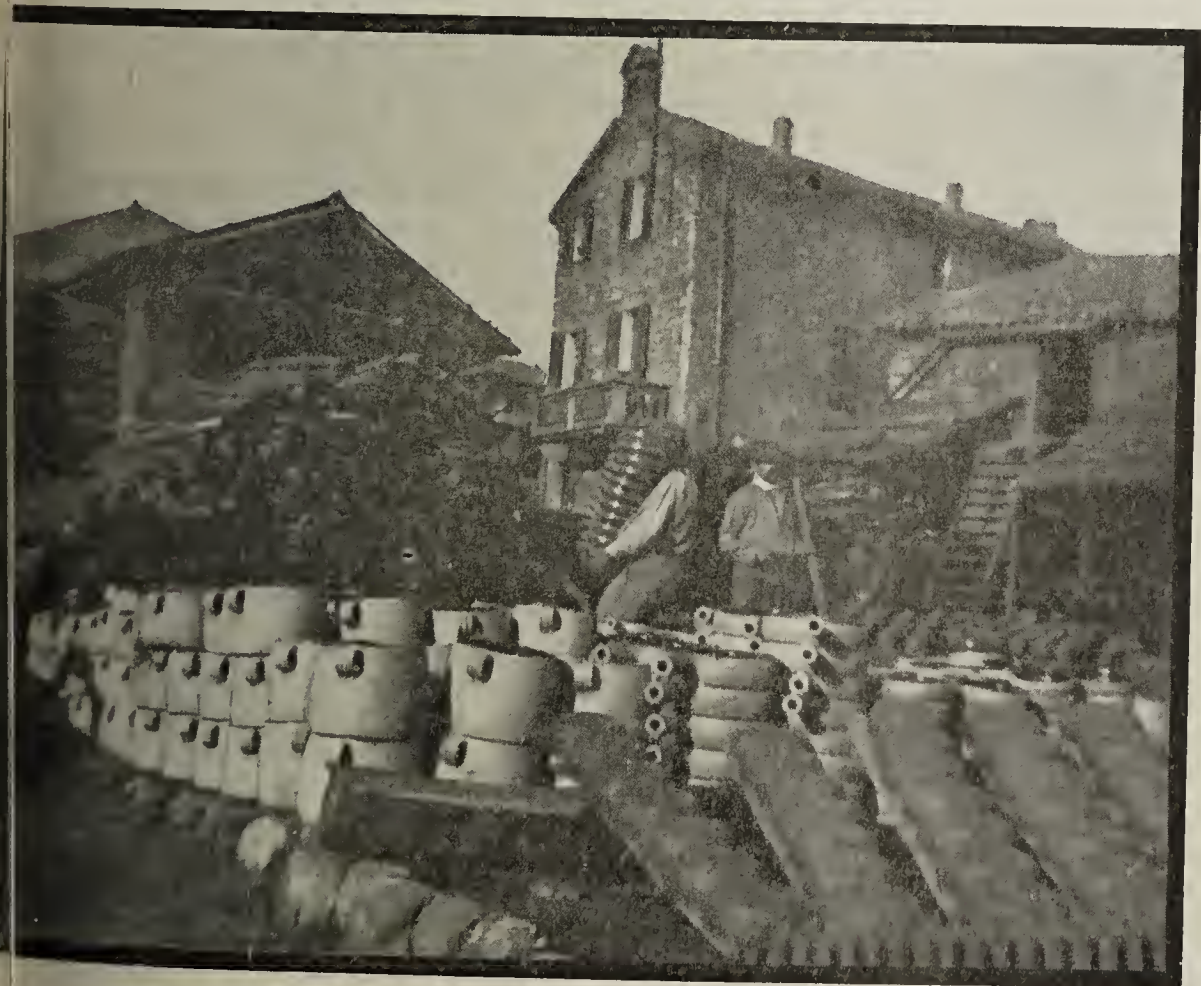
The Caseroles Are Piled Up Like Melons on the Shores of the Golfe Juan.

founded the enterprise at Golfe Juan which now bears his name. Massier has today drawn around him many craftsmen of ability, and the wares from his atelier find a ready market with the wealthy and numerous clientele which, in winter, annually flock to these Mediterranean shores.

Massier is a much-traveled person; he has been to the utmost corners of the earth searching out new models and adapting others from the antique. He bothered little about the form, but sought ever to perfect the tinting, glazing and enameling of their surfaces, until he finally rediscovered that metallic iridescent effects in rainbow tints which has made the luster ware of the Golfe Juan renowned all over the world. Massier's talent and industry would never have produced the results that they have, however, had he not been possessed of a remarkable personality, which has endeared him to all with whom he has come in contact.

A visit to the Massier potteries at Golfe Juan, from the moment one enters the great gate posts in faience and terre cuite until one leaves by the garden where are the great porcelain frogs and turtles, is a succession of edifying surprises which will stamp indelibly on the mind that here is the first art pottery establishment in all the world.

Closely bound up with the hamlet of Golfe Juan is the busy little industrial city of plastic art, Vallauris. Regardless of its name being evolved from the "golden valley" of Roman times, it is a grimy, smoky, workaday city of workmen. Its wonderful cadre alone saves it from being like a mining town of the "black country." Half a dozen miles away lap the bluest of blue Mediterranean waves; to the southwest is the red porphyry curtain of the Esterels; to the extreme south Corsica may be seen on a fair day; while the background of the Alpine



A View at One of the Potteries of Vallauris.

foothills shelters this smiling valley from the winds and snows of winter.

As Clement Massier's more splendid establishment lives off its art pottery, so do the factories of Vallauris give a livelihood to thousands of workmen from their product of cruder, cheaper forms of pottery, the marmites, the poelons and casseroles of the French chef's batterie de cuisine, now to be found all over the world, whence they are shipped from this warm little corner of maritime Provence.

Once and again a journeyman potter who for years has fashioned these humble stone crocks, has a vision or inspiration of something more aesthetic in form, and he graduates into the "art pottery" establishments; but many thousands at Vallauris still turn and turn away the humble potter's wheel in the traditional manner of old, in a vain effort to catch up with the demand for casseroles and marmites which, seemingly, it is never possible to supply, since the vogue has spread even to the former cult of the chafing dish, which has added casserole cooking as a new-born tenet of its creed.

The potters of Vallauris, the tourneurs, those who turn the wheels with that interminable, classic tread-mill motion of the feet, are reckoned among the most capable in all the world. Fully one-half the population of the town are of this profession. Recently a strike was called. In order to keep a proper relation between the supply and rapidly increasing

liquid glaze before baking; the cheaper ones are glazed only inside.

The shipping of a consignment of the casseroles of Vallauris is no very complicated affair. Instead of being cased, or crated, they are shipped in bulk, like grain or wheat, or the Edam cheeses of Holland, possibly a little more carefully handled, but entirely devoid of wrappings and protection of any kind. First they are piled up like melons, or pumpkins, on great drays and carried to the railway station; others journey a bit further by road, to the shores of Golfe Juan, where they are packed like casks in the holds of ships, the lateen-rigged Mediterranean kind, to be transported by water to Marseilles or Genoa, there to be transhipped and ultimately to be unloaded in all ports of the seven seas. In San Francisco, Petersburg, Hong Kong or New Orleans, if you by chance find one piece of Massier's famous luster in the hands of some collector, you will find dozens, or scores, of the casseroles and marmites from busy Vallauris in neighboring hotels and restaurants. Italy, Egypt, Spain and the Latin Republics of South America have hitherto been the best customers of the potters of Vallauris.

The industry is still being worked on the old unprogressive lines of hand labor and low wages, whereas if the new regime ever comes into being the product will be made and marketed with little thought of the value of the marque de



Panoramic View of Grant Park Plant of the Curtis Brick Company.

demand the factory owners talked of putting in a range of mechanically propelled turntables, when one tourneur would be able to handle three of the revolving tables at a time and his product increased two hundred per cent. The Vallauris journeyman potter would hear of nothing of the kind, even at an increased wage.

The business engineer who reorganizes factories has got no foothold at Vallauris, and the potter's wheels are still turned by the sturdy nether limbs of the coquins de bon sort of the Val d'Or as they have been for generations.

It is most interesting watching the fabrication of these earthenware pots and pans at Vallauris. The marmites, or soup pots, are, curiously enough, made upside down. In this way it is possible to gauge to a nicety the thinness of the bottom, which must be only so thick as will stand up under wear, and so thin as to allow a rapid transmission of heat to the contents.

The marmites and casseroles, after being shaped are laid out in the sun to dry under a natural heat for a time. The handles are all made separately, and, after the bowl, or basin part, is partially dry are attached in their proper places, when the whole affair is transferred to the kilns superheated with blazing pine knots. They now take on a firm, hard, fire-resisting surface. Certain of the finer qualities are dipped in a

fabrique, and the workers will be paid for piece work on a sliding scale instead of the traditional wage of five francs a day. They will make more money, perhaps, but they will be less happy, and they will lose interest in their work. They are bound to.

The art potters of the Golfe Juan, who earn perhaps twenty-five francs a day, and the more humble workers of Vallauris who gain a fifth of that sum, are all artisans and craftsmen, with never a care for the publicity or progress which shall augment their incomes and lessen their ambitions. The super-luxury of the Riviera cities and towns has left them uncontaminated.

"She came. She passed a final word
Upon the bisque, the Mornay sole,
The poulet (said she thought the bird
Shewed at its best en casserole)."

—Owen Seaman.

This up-to-date quotation shows how the vogue of the casserole has progressed and how its devotees have formed a coterie—whether they be on Broadway, Picadilly or the New Prospekt.

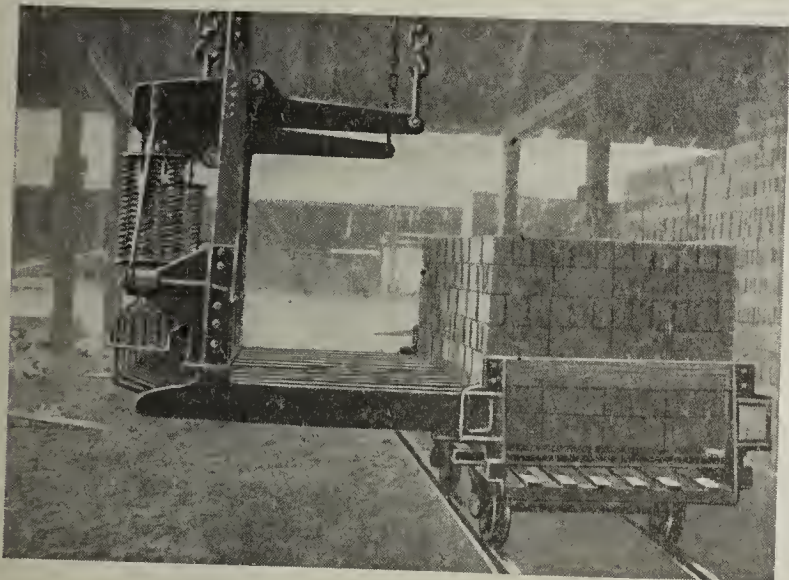
There are some opportunities for development in clay roofing tile that look too good to be neglected.

MACHINE SET BRICK BY THE PENFIELD SYSTEM.*

BY R. C. PENFIELD, NEW YORK, N. Y.

Late this morning your Secretary, Mr. Randall, requested that some lantern slides representing the mechanical brick setting system be shown to the convention at this time. We trust, therefore, that you will pardon the short and hurried description which follows, owing to the briefness of the time allowed for preparation.

Two years ago at Columbus, the possibilities of the mechanical brick setting machine were first brought to the attention of the convention. One year later the speaker in person presented this same subject to the convention at Rochester, showing views of what had been accomplished and predicting that in the near future yards would be constructed of larger capacities and adopt the system of mechanically setting the brick into the kilns. These remarks may, therefore, be considered as a continuation of the reports referred to as well as a report of progress. During the past year we have devoted a very large amount of time and money to the development of this system, which we fully believe bids fair to produce a revolution in the method of the manufacture and handling of brick. One year ago the development of the machine up to a capacity of 125,000 to 150,000



Fingers of Machine Entering Space Between Brick of Bottom Row.

brick per day of ten hours had been accomplished by handling units of from 100 to 120 brick at one time.

In order, however, to adapt this system to the requirements of yards manufacturing from 250,000 to 300,000 brick per day it was necessary to produce a machine capable of handling units of from 600 to 1,000 or more brick at one time, thus making it possible for one operator, handling the crane and the setting machine, to successfully place in a kiln the capacity of such a plant up to 300,000 or more per day.

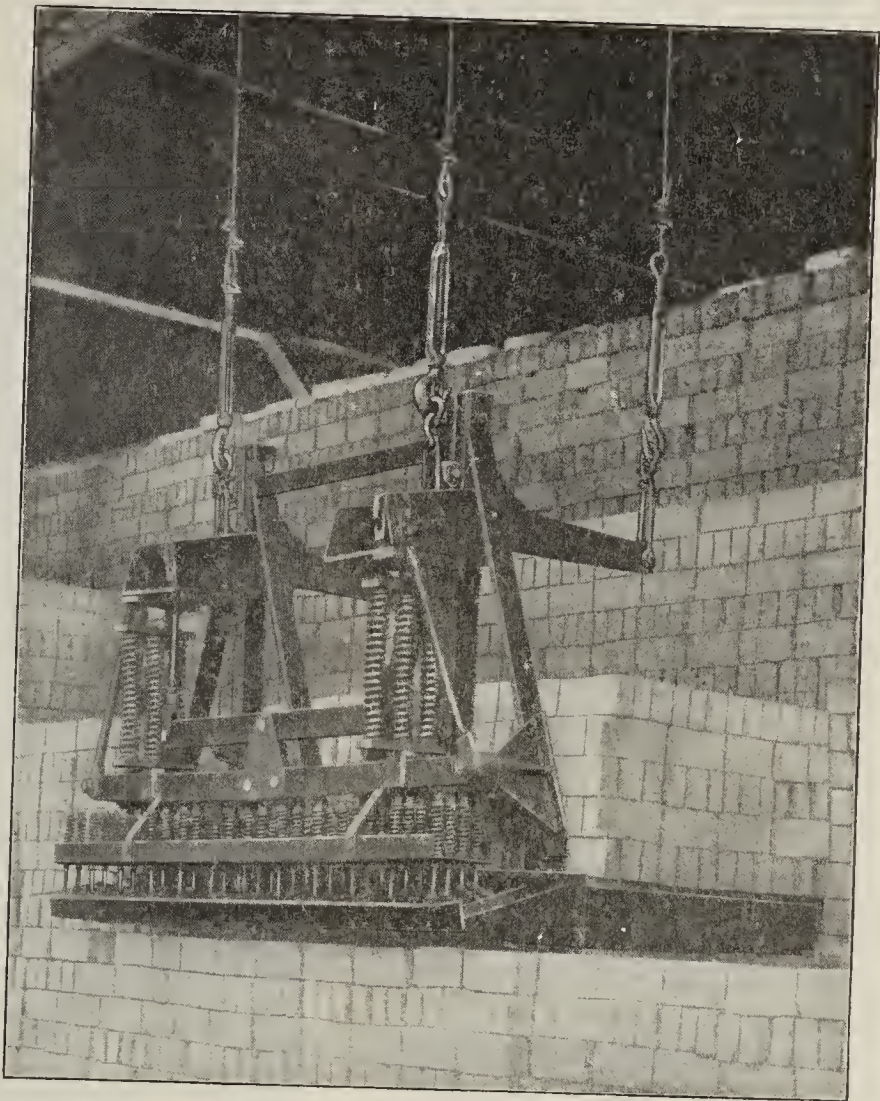
In working out this system the designing of special cars and special system of hacking the brick onto the cars in close formation was necessary; then means of spreading the respective rows of bricks to permit the proper drying in the tunnels, and again closing them after the brick had been dried and before going into the burning kiln.

All of this became necessary in order to make possible the handling of a large body of brick consisting of three to four rows deep and from nine to eleven rows in length, making a unit containing from 750 to 1,000 brick (depending upon the height the brick are hacked upon the car). In order to facilitate transportation of brick in such large quantities to the crane and the spreading and closing of these units, special power driven transfer cars were required. We were next compelled to produce the necessary cranes and

special balanced brick setting machines adapted to these large units.

It should be remembered that we are at present in an age of great developments. Inventions are coming thick and fast upon us and, as disclosed from day to day in the march of wonderful achievements, no one is now surprised at a development of any kind. The conquest of the air has been accomplished and problems of vastly more difficult character are daily solved; then why should we hesitate to consider entirely possible so simple a proposition as setting 300,000 brick per day into the kiln by the labor of a single man operating the crane after the brick have once been delivered under the kiln shed where the operator can reach them with the crane and setting machine?

Nevertheless, when we presented this matter to a number of Chicago brick manufacturers we were met with the statement that it would be impossible to work such a system in Chicago, and all the difficulties that could be conceived of



Setting Load on Third Bench.

were presented. It was only after each difficulty had been eliminated and the machines thoroughly demonstrated that any attention could be gained from the manufacturers, who were in reality sorely in need of a machine of this kind.

As many members in this convention are aware, the brick-makers of Chicago have a clay especially adapted to the auger machine and capable of being run from the machines with great speed. By reason of this they have developed a capacity in the manufacture of brick that is not equalled in any other place in the United States, and I believe I am safe in stating, no other place in the world. All of the manufacturers make practically the same kind of brick and are using almost entirely the same class and kind of machinery. This, therefore, was an ideal location in which to introduce a system of this kind, and I am pleased to say that after the merits of the machine had been fully explained and after a large number of the manufacturers had in person visited and seen a demonstration of the machine in Kansas, a number of the companies were sufficiently well pleased to consider its

* A paper read before the Twenty-fourth Annual Convention of the National Brick Manufacturers' Association of the United States of America, Pittsburg, Pa., February 7 to 10, 1910.

adoption. We thereupon proceeded to equip one of the Chicago yards with our system, installing the necessary cranes, special cars and full sized carload setter, which made it possible to fully demonstrate the adaptability of this device to a Chicago yard.

A large number of the gentlemen present may have seen the moving picture representing the operation of this machinery at the Cherryvale, Kas., plant, as well as upon one of the Chicago yards, which pictures are being shown in the exhibit room of the American Clay Machinery Company in this hotel. For the benefit of those who have not seen the pictures, and to better explain the system we will briefly run over a few of the slides illustrating this device.

[At this point a number of slides, showing the brick setting machine, were thrown upon the canvas. These slides included the illustrations published herewith in connection with this address. These pictures are from photographs taken of the machine in operation in Chicago.]

Before closing, I will state that the Chicago brick manufacturers, after having thoroughly studied this system and after carefully watching the operation of the machinery, adopted this system and are now engaged in installing this apparatus in their plants.

The installation of the apparatus makes necessary some change in construction of their kiln sheds and locating therein the crane runways to provide for the overhead traveling cranes. In some cases the kiln shed will be entirely rebuilt.

It is to be regretted that only one of the Chicago brick manufacturers is represented at this convention, but extenuating circumstances may be offered, as they are engaged at the present time in equipping their yards for the mechanical setting machines in order to take up the manufacture of brick the coming season by this new method. Now that this system has been adopted by the Chicago yards, with their wonderful capacity and with the ability to handle brick mechanically, there is little doubt that they will maintain their past reputation for producing the largest quantity of brick and being able to produce them at a very low cost, in spite of the fact that Chicago pays the highest wages for labor and is digging up valuable real estate for the production of its brick.

We not only believe that a revolution is at hand in the manufacture of brick, but we anticipate that still greater developments will be made during the coming year, and we shall hope to have some further report of progress to make at the next convention.

During the campaign which the speaker was obliged to conduct in order to bring this matter to the attention of the Chicago manufacturers and to secure its adoption, all kinds of

objections were met, and I was obliged to resort to many arguments, or, at least, state the same argument from many different standpoints in order to accomplish the result.

At a banquet given to a large number of the Chicago brickmakers, at which motion pictures were shown of the machine in operation, I prepared a souvenir for the occasion containing a few verses, and in closing my remarks I will, with your indulgence, have these verses thrown upon the screen and will read them for you.

THE GREEN CHEESE MOON.

If your troubles don't come singly in the ordinary way,
They come in great big bunches to the men who handle clay.
And nowhere on God's footstool do they hit so fast and hard
As in a busy season on a big Chicago Yard.

There's trouble with machinery and with the men and kiln,
There's trouble with the shovel until you have your fill.
But your troubles are sufficient to simply drive you "daft,"
When you're up against the Setters—true Bosses of the craft—

And now along came Penfield, with his Model, to the city;
He enthused upon its merits and said it was a pity
To still set brick by hand as in the old Egyptian day,
When his machine would do it in a quicker, better way.



Setting Load of Brick on Top Bench of Kiln—Note Evenness of Brick on Under Side of Load.

He talked about its merits, the money it would make,
And how much less of time and labor it would take.
But his picture was so glowing it made the brick men shy,
And they took it with a grain of salt and winked the other eye.

He urged, 'twas only recently, by hand, you dug your clay,
And some of you have molded brick in the old, old fashioned way;
Now with shovel, worked by steam; machine and cutter run by
power,
A week's run in the old hand way is turned out in an hour.

With these machines you're up to date, it's nineteen nine A. D.,
But setting brick by hand, good friends, is nineteen nine B. C.

"Machine set brick! Impossible! It really can not be.
The Moon may be of Green Cheese made, but this machine we'll
have to see."

And when he said he'd show them, and prove his dream was true,
They opened up that other eye, and said "that's what you must do."

So out to Kansas they all went, each sure within his mind
That, though they'd have a pleasant trip, no "Machine Set Brick"
they'd find.

'Twas too absurd for credence, why had it not been done before?
So Penfield showed his model and explained it all the more.

'Twas a wonder that Chicago men, most up-to-date on earth,
Should treat this proposition as a bit of quiet mirth.
For when they saw this great machine of more than human skill
Pick up the brick so deftly and set them in the kiln,
Their doubts and fears all vanished, and, in a little while,
Their faces, one and all, took on a most expansive smile.

A FEW POINTS ON THE PENFIELD SETTING MACHINE.

THE INSTALLATION of the Penfield brick setting machine at the plant of the Alonzo Curtis Brick Company at Grant Park, Chicago, has attracted wide attention among the manufacturers. The machine has been in operation for some months and the brick manufacturers are so sufficiently satisfied with its work that all the brick factories in the Chicago territory have adopted the new method and the work of installing these new machines is now going forward in many of the Chicago yards, and a million dollars is being spent on this equipment.

The machine is most ingenious, though extremely simple. When the brick coming from the brickmaking machine are piled on the dry cars, about 1,000 brick constitute a load. These loads are built on a standard plan, which provides a space between the bricks on the bottom rows. When the cars come from the dryer they are brought into the kiln shed where the setting machine is in operation. The setting machine is made of steel and is provided with a number of heavy fingers of a proper width to allow them to pass freely into the openings left between the bricks of the bottom rows.

Each finger is provided with pressure plates automatically operated. The setting machine is suspended from an overhead electric crane traveling on elevated tracks running the length of the kiln shed. The operator of this crane can pick up the setting machine and carry it to any part of the kiln shed. When the car of brick has been received from the dryer, the craneman lowers the setting machine to a level with the car of brick. He inserts the fingers accurately into the spaces left for them and starts to raise the load. As soon as the weight of the load of brick rests on the setting machine, the grip plates are automatically closed on the bottom row of brick with just enough pressure to keep them from falling. The bulk of the load is carried by the heavy steel fingers, as above the first two courses of brick the stack is set crossways of the fingers. Having raised the load to the height required, the craneman carries it to that part of the kiln where he wants it set and it is lowered accurately to the exact position required. When the stack is lowered into position, it rests on other brick and the weight of the load is naturally removed from the machine. This being the case, the pressure is automatically released by the grip plates which have held the bottom row of brick and the machine is left free. The crane man backs out with his machine and returns to the dry cars for another load. In the Grant Park yard the machine has been operating at a speed of a dry car load of 1,000 brick each minute,



Penfield Setting Machine Lifting Arch Unit—Note Formation of Arch.

so that it is apparent that the machine will handle as many brick in ten minutes as would require the services of one man for a whole day under the old hand set plan, as the average hand set brick is 10,000 a day per man.

While the setting machine has been used thus far only for setting the brick in the kiln, it is thought it can be utilized for taking the burned brick from the kiln and loading them on cars for shipment. Each load can be picked up and carried to the railway cars and deposited therein. The machine therefore would do the work of the brick setter for which he has been paid 55 cents a thousand, and the loading for which men have been paid 37 cents a thousand, making a total of 92 cents per thousand. One man and a helper can operate the setting machine and take care of all the brick that the biggest Chicago yard can produce.

The installation of this new method in Chicago territory has ushered in a new era for Chicago brickmakers. It has made it possible to increase the capacity of the plants and extend shipments throughout surrounding states. It has transformed a poor investment into a profitable one and has made dividends possible where it has been difficult to meet expenses, and because of its cost reducing possibilities brick manufacturers from all parts of the country are almost daily

MINING ENGINEERING AT THE UNIVERSITY OF ILLINOIS.

In February, 1909, a fuel conference was held at Urbana, Ill., upon the occasion of the opening of the Mine Rescuing Station established at the University of Illinois by the joint action of the University of Illinois, the State Geological Survey and the United States Geological Survey. At this conference a committee of nine was appointed, consisting of three mine inspectors, three representatives from the Illinois Coal Operators' Association, and three representatives from the Illinois branch of the United Mine Workers of America. As a result of the very efficient work of this committee, the Legislature of Illinois, then in session, passed an act establishing a department of Mining Engineering, which can, therefore, be said to be peculiarly the child of the mining industry of the state.

The state of Illinois by law requires men aspiring to be mine managers, mine examiners and hoisting engineers to pass a state examination before permitting them to act in these positions. It was, therefore, only just that she should provide at the State University a department of Mining En-



Third Street, Little Rock, Paved With Dickinson Block in 1907.

visitors to Chicago to see how the work is done, to learn of its adaptability to their own plants. The Chicago brick manufacturers have been badly hampered in the past, but the adoption of this machine has made it possible to relieve the situation, and Chicago is assured of an adequate supply of brick at a price that will compare favorably with other big cities. San Francisco is paying \$7 a thousand for brick, Cleveland \$7.50, St. Louis \$7 to \$8, Pittsburg \$8, New York \$6 and Kansas City \$7.25. These prices are for brick on board cars at factory. The Chicago price, which is \$6, will be seen to be way below the average.

The perfection and introduction of the mechanical brick setter is a step in advance to the credit of Chicago brick manufacturers. It removes a last remaining obstacle in the pathway of greater production. The mechanical brick setter ranks in importance with the cotton loom, the steamboat, the railway train and the typesetting machine, and, like these other great inventions, will broaden the field of labor and create more positions and opportunities to be filled by workmen thus released from an arduous task.

gineering so that her young men could fit themselves within their home state to operate the mines within the state in accordance with the regulations laid down by the state. Now that the state has made this provision, the young men of the state should avail themselves of the privilege offered by a carefully planned course in mining engineering designed especially to serve the needs of Illinois.

Full particulars in regard to the course can be obtained by addressing the Department of Mining Engineering, University of Illinois, Urbana, Illinois.

Frank McMurdie, superintendent of the American Blower Company's Detroit plants since about 1894, has resigned, his resignation taking effect March 31. After a short pleasure trip he will take the general superintendency of the Clarage Foundry and Mfg. Company, of Kalamazoo. Mr. McMurdie was one of the oldest employes of the American Blower Company, having entered their employ in 1883.

WITH THE PROGRESSIVE ARKANSAS BRICK MANUFACTURERS.

Little Rock a Fine Convention City—Visiting Clayworkers Admire Her Excellent Brick Paved Streets and Enjoy a Trip Through the Extensive Plant of the Arkansas Brick and Mfg. Co.

THE SECOND annual convention of the Brick Manufacturers of Arkansas was held at the State Capital March 28 and 29, and proved a very interesting and enjoyable occasion, though the attendance was not as large as had been anticipated. The meetings were held in the Commercial Travelers' club room of the Marion Hotel and were presided over by President M. C. Burke, of Fort Smith, whose directness and forceful personality make him a natural born executive. Secretary C. E. Taylor proved a most efficient officer and a clever entertainer as well, so, with the assistance of his chief, Mr. W. W. Dickinson, Little Rock's veteran brickmaker, the business sessions of the convention were quite instructive, and the social features most enjoyable. Without any seeming effort to do so these kindly gentlemen and their associates entertained the visitors in a manner so

views, are smooth and clean. Little Rock deserves praise for its thrift and public spirit, which finds expression in various ways, and in none more than in well paved streets. These are growing at a rate of several miles each year, and the pavements are almost exclusively of brick.

Little Rock is an exceptionally attractive city. It was named, 'tis said, because the original explorers making their way up the river found there the first outcropping of rock which they had seen on their course up the river. It is a city building on a rock, all right. Those who have an idea that it is located in a swampy or miasmatic region must revise their opinion. It is in the foot hills of the Ozark Mountains and located on a bluff above the Arkansas River, the elevation above the tide water being 440 feet. The river itself is a commerce-bearing stream and is spanned by four



Tenth Street, Little Rock, Paved With Dickinson Block in 1908.

unostentatious, yet so cordial, that the convention resembled a home-coming festival.

The deliberations were almost entirely informal and, as a result, every member present participated freely in the discussions of the various phases of the business, such as the treatment of clays, the various methods of drying and burning, and the modern methods of marketing, etc. There was no set program, and only one formal address was delivered, that of State Geologist Purdue, which, by his courtesy we are able to give in full.

A brief session was held late Monday morning. At 12 o'clock an appetizing luncheon was served with the compliments of the local manufacturers, and immediately thereafter the visitors were taken in automobiles to the extensive brick works of the Arkansas Brick and Manufacturing Company, located some three miles from the city. The ride was very pleasant and afforded the visitors a glimpse of the city and its environments, and a charming city it is. Most of the streets and roadways are paved with brick made by the A. B. and M. Co., and, as the reader may see by accompanying

steel bridges, one of which was erected recently by the city at a cost of nearly \$400,000, and which is saving its citizens about \$100,000 annually in tolls, for there is another city separate in its municipal government on the north side of the river, Argenta, a thrifty city of about 20,000 with electric street cars, great railroad shops, cotton compresses, oil mills, a creosoting plant, etc., which doubtless some time in the not far distant future will be annexed to create a greater Little Rock.

The commerce of Little Rock last year amounted to upwards of \$15,000,000. The spirit of enterprise which dominates its people is well illustrated by the manner in which they checkmated the railroads when they attempted to extort excessive freight rates. River towns complained of the high freight charges and so the merchants of Little Rock established a packet company and now boats are regularly operated both above and below the city. Little Rock is not only an important commercial and industrial center, but is a community of culture and refinement. Among its public and educational institutions it numbers a State School for the

Blind, a State Hospital for Nervous Diseases, a State Deaf Mute Institute, a Confederate Soldiers' Home, and numerous common and high schools. A new capitol building is nearing completion, which will rank with the best buildings of the character in the country. The United States Government maintains a military post near by, Fort Logan H. Roots, capping a mountain one mile west of the city. On account of its scenic beauty, it is called a second West Point. The city has many surprises for those who regard it as a little sleepy old town on a sluggish stream, instead it is a hustling, enterprising American city. It has a number of fine hotels, the latest and best being the Marion, which is a modern eight-

are burned. An inspection proved that he had good reason to be proud of them for the burns were uniformly good.

The company owns a large acreage of rich clay land. Indeed, they have one of the most remarkable deposits of graphitic shale that has ever come to the writer's attention. In its natural state this clay is truly "as black as your hat." It is plastic and is so graphitic that it seems almost greasy to the touch. Strange to say, this shale burns white. The shale bank was opened but recently. Only a few thousand brick had been made and these were dried and burned with common brick, but they were so excellent in form, color and texture that the visitors one and all declared that the plant would



Supt. Godwin (to left) and the Visitors Near Temporary Kiln.



The Water Boy and the Yard Mascot. Up-Draft Kilns in Background.



Black Shale Pit of the Arkansas Brick and Manufacturing Company, Little Rock.

story structure, recently completed at a cost of half a million dollars and is as elegant in appointment as any of the metropolitan hotels in the north and east.

The Arkansas Brick and Manufacturing Company's Plant.

Arriving at the plant, the party was introduced to the superintendent, Wm. Godwin, who is evidently the right man in the right place. He has been employed at the plant for a number of years, and the excellent quality of building and paving brick produced attest his skill. He takes special pride in the square down-draft kilns which are of his own designing and in which the paving block and pressed brick

soon be noted for its white face brick. The deposit seems really to be inexhaustible, drillings proving it to be several hundred feet in depth. It is covered with ten to fifteen feet of top soil and ordinary shale, which is stripped with a steam shovel, after which the same steam shovel working to a depth of about twenty feet scoops it up and drops it into a side dump car in which it is hauled by cable up an incline and dropped into Frost dry pans. Thence it goes to a Chambers stiff clay machine. At the time of our visit, they were making side cut brick at the rate of 70,000 per day, a portion of which go direct to the tunnel dryers, and the rest are first repressed, four American Eagles performing the latter func-

tion. The present capacity of the plant will probably be doubled in the very near future, by the installation of a duplicate machine and cutter which they now have. They also have a six-mold dry press which heretofore has been used for red press brick, but which may hereafter be used for the production of fine white brick. The paving block which constitutes the chief product of the plant are made from the red burning shale.

The plant is substantially and well equipped in every detail, including a fine two-story brick office building. It has admirable shipping facilities, a railroad siding running into the plant and past the kilns, so the brick are easily wheeled from kiln to car. At every turn one sees evidences of skillful management, and after meeting Mr. Dickinson and observing his thorough going ways, one can easily account for its suc-

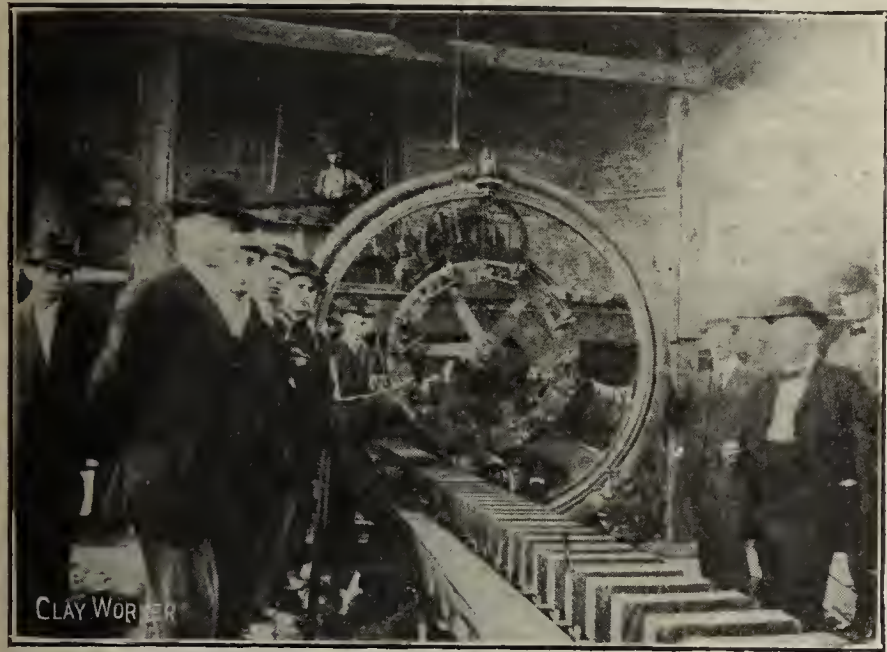
Prof. A. H. Purdue, who, by the way, is an ex-Hoosier, having formerly been connected with the Indiana State University, is planning to establish a school for clayworkers at the Arkansas University at Fayetteville. The following address, which he delivered to the convention, was listened to with deep interest and the delegates pledged themselves to aid him in the establishment of the school, which it is hoped will be given the substantial support it deserves from their next state Legislature.

POSSIBILITIES OF THE CLAY INDUSTRY IN ARKANSAS.

BY A. H. PURDUE, STATE GEOLOGIST, FAYETTEVILLE, ARK.

Mr. President and Gentlemen of the Convention:

Probably no state in the Union has a greater abundance of useful clay and shale deposits than Arkansas. These deposits include all varieties from common brick clay to those that are well adapted to the manufacture of fine table and ornamental ware; and the de-



The Chambers Brick Cutter.



Taking Brick Into Down-Draft Kiln.



The Red Shale Pit.



The Visitors Near Yard Office.

cess. It represents a large investment of both money and brains and the latter insures a good return on the former. It is easily one of the most important institutions of the state.

A Theater Party.

Monday evening Secretary Taylor escorted the visitors to one of the principal theaters, where a high-class vaudeville performance was enjoyed. For this and other courtesies shown, Mr. Taylor and his associates were tendered a vote of thanks at the closing session of the convention, Tuesday.

Another pleasing incident was a moving picture show provided by Mr. H. L. Harmon, a representative of the American Clay Machinery Company, of Bucyrus, Ohio. The delegates went in a body to the Wonderland Theater, where a series of views of the automatic brick setting machine and appliances were shown and described in an entertaining manner. Mr. Harmon and his firm were tendered a vote of thanks for the entertainment afforded.

posits are so widely distributed that no part of the state is without either useful clay or shale. The clay occurs as residual and as sedimentary deposits.

Most of the clays that occur west of the St. Louis, Iron Mountain and Southern Railway are residual, but some of those west of this railroad in the southwestern part of the state are sedimentary. Those residual clays in the central and southern parts of the area named are derived from the decomposition of shale. Most of those in the northern part of the area have had the same origin, but some of them are residual material from the decomposition of impure limestone. On the hill-slopes of the northern part of the state, and in the Arkansas Valley, there are numerous outcroppings of shale inviting the manufacturer. Most of these clays and shales are of the common varieties, but many of them are high-grade.

The sedimentary clays lie mainly east of the St. Louis, Iron Mountain and Southern Railway, but they also occur west of it in the southwestern part of the state. While these deposits contain low-grade clays, it is in them that most of the high-grade clays of the state are found. Many of these deposits are conveniently located for shipping, but few are developed.

The clays of Arkansas demand attention as a source of wealth,

not only from those interested in the manufacture of clay products, but from all who desire the commercial development of the state. The value of the clay products of the United States for 1907 and of Arkansas and some of the other states for the same year is given in the following table, which is compiled from statistics published by the U. S. Geological Survey:

TABLE SHOWING THE VALUE OF CLAY PRODUCTS.
1907.

State.	Brick & Tile.	Pottery.	Total.
Alabama	\$ 1,726,664	\$ 27,745	\$ 1,535,517
Arkansas	519,336	16,950	536,286
Georgia	2,456,352	33,885	2,490,237
Illinois	12,216,323	1,004,166	13,220,489
Indiana	5,988,970	869,154	6,858,124
Kentucky	2,444,743	166,621	2,611,364
Louisiana	922,877	5,693	928,570
Missouri	6,820,684	78,187	6,898,871
New Jersey	9,019,834	6,985,626	16,005,460
Ohio	16,807,631	13,533,199	30,340,830
Oklahoma	644,512	.....	644,512
Tennessee	1,446,647	167,215	1,613,862
Texas	2,401,388	156,173	2,577,561
United States .....	.....	.....	158,942,369

The value of the clay products of the United States is nearly twice the value of its gold production and is exceeded in mineral resources only by that of pig iron.

Dr. J. C. Branner, ex-State Geologist of Arkansas, once said to the writer that Arkansas, because of its great variety of clays, its cheap fuel and labor, and its climatic conditions, ought to become the leading state in the manufacture of clay products. If we couple this statement with the one that the clay products of Ohio are worth \$30,000,000 annually, we get some idea of the magnitude of this source of wealth in Arkansas.

The development of the clay industry of the state can be promoted by encouraging the building of brick houses and the use of roofing tile, brick pavement for streets and drain tile. The time has come when the frame house should be supplanted by the brick one for the reasons that the latter is more durable, makes the most comfortable home, is safer from fire and will gradually become relatively cheaper because of the increasing cost of lumber. With roofing slates no nearer than the Appalachian region and with the decrease of suitable timber for shingles, the use of roofing tile should be urged upon architects and contractors. The streets of our towns and cities should be paved, and for all purposes probably nothing is better than brick.

There is a good deal being said at present about the draining of our swamp lands. This movement should have all the encouragement it can get; but after the main drainage lines are opened up, the drainage problem is only half solved, for the land must be tiled before it will yield its competency. Not only must the swamp lands be tiled, but a large percentage of our land that has been long in cultivation would at least double its yield if so improved. To build up the drain tile industry requires only that the farmers be made to see that it pays to tile their land. It would seem that no industry in the state should have a greater future than the manufacture of drain tile.

The rapid improvement in our towns and cities is creating a demand for sewer pipe that will increase with time. Should not this be supplied at home instead of being shipped in from St. Louis and other points?

The deposits of high-grade clay within our state should not be neglected. If it is not practicable to interest capital in the manufacture of the finest ornamented products and table ware, it is practicable to have made within our state large quantities of the common grades; and it is the common grades that most of the people buy.

With the hope of thereby encouraging the clay industry, the Geological Survey of Arkansas is now engaged upon the field work for a report on the clays of the state. Numerous samples of clays within shipping distance of the railroads are being collected. These will be carefully tested to determine their chemical, physical and burning properties with the view of ascertaining the best use or uses to which each deposit of clay can be put.

Probably nothing would ultimately contribute more to the development of the clay industry of the state than the establishment at the University of Arkansas of a department of ceramic arts. Such a department should offer a course of four years and should include instruction in the origin and nature of clays, the testing of clays for the various purposes to which they are put, the construction of kilns, the types of kilns adapted to different products, fuels used in burning, clay machinery, and so on. It is my belief that such a course should not only include instruction in the utilization of low-grade clays, but should lay stress upon the production of clay ware of fine quality. The value of the china and porcelain ware imported into the United States in 1907 was \$13,472,135. This immense sum indicates that here is a large field for capital and the artisan. Arkansas should exert itself to develop this field.

In conclusion permit me to warn you against the tendency of

men to go far from home in uncertain quest of wealth from the precious metals, when there are certain returns in utilizing the common products of the earth at our doors. The men who are influential in developing our clay industry will not only be engaged in profitable business, but will be benefactors to the state.

MEMBERS OF BRICKMAKERS' ASSOCIATION OF ARKANSAS.

Benton Brick and Pottery Company, Benton, Ark.
Beebe Brick Works, Beebe, Ark.
Eldorado Brick Company, Eldorado, Ark.
Burke Brick Company, Ft. Smith, Ark.
Coffeerville Vitrified Brick and Tile Company, Ft. Smith, Ark.
Gurdon Brick Company, Gurdon, Ark.
Helena Brick and Manufacturing Company, Helena, Ark.
Hope Brick Works, Hope, Ark.
Valley Planing Mill Company, Hot Springs, Ark.
Barton Lumber and Brick Company, Jonesboro, Ark.
Clark Press Brick Company, Little Rock, Ark.
Arkansas Brick and Manufacturing Company, Little Rock, Ark.
Choctaw Brick and Gas Co., Mansfield, Ark.
J. L. and D. M. Davis, Magnolia, Ark.
O. C. Sutton & Co., Marianna, Ark.
Malvern Brick and Tile Company, Perla, Ark.
Pine Bluff Brick Company, Pine Bluff, Ark.
Y. O. C. Brick Company, Pine Bluff, Ark.
A. W. Stevens & Sons, Texarkana, Ark.
Texarkana Brick Company, Texarkana, Ark.
Wm. Buford, Wynne, Ark.
J. A. Barringer & Son, Whelen Springs, Ark.
G. N. Adams, Alexandria, La.
Monroe Brick Company, Monroe, La.
J. R. Randolph, Ruston, La.
Olaf-McCormick Brick Company, Shreveport, La.
Bossier City Brick Company, Shreveport, La.
Winfield Brick Company, Winfield, La.

OBLIGATIONS OF A BUILDER TO HIS NEIGHBOR.

When a man builds a house he incurs certain obligations to his family, his neighbor and to the community in general. It is not always possible for one to fulfill all these obligations, and frequently to better fulfill one he will wholly disregard another.

He owes it to his family to make that house safe, comfortable, durable and permanent. He owes it to his family and to his neighbors and to the community in general to make that house attractive in appearance, sanitary in drainage and to eliminate the risk of fire as much as possible. There are many points like this to be considered when one builds and there are city ordinances that make it imperative that some of these points be considered, but how often we see a house ten or fifteen feet nearer the sidewalk than all the other houses in that block; how often we see an extremely plain house alongside of one that shows the artistic taste of its owner, and, in this large city of ours how terribly often we see a block of houses built up close, almost touching each other, and all of frame construction. Just think what it would mean for one of those houses to catch fire some windy day. There is block after block in this city where a little fire on a windy day might easily mean the destruction of a large section of our city.

This is the one point that is mostly forgotten in trying to fulfill the other obligations of the house builder, and yet by giving this point careful consideration how easily and how surely it will help to obtain all other results desired.

By building of brick you reduce the fire risk to a minimum; you make your house a permanent structure; you give your family a home that is easily kept warm in winter and is delightfully cool in summer; you have a home that will be there for your children, your children's children and their children; your taste for the beautiful may be gratified to any extent in the selection of brick of any surface, color or design; your purse can be suited, for the most elaborate designs and color schemes can be built from the product of the common brickmaker. When you have finished this house of brick your neighbors will be proud to have you alongside of them and the community in general will be glad to shake your hand because you have shown your confidence in the city by the construction of a permanent brick house.—Exchange.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.



WING TO the unusually early spring which this section of the state has enjoyed this year, the spring building season is now under full head, and so much new work has been started that even a few weeks of cold weather will have practically no effect in delaying new work. There has been practically no rain, and as the frost has been out of the ground for several weeks now, excavation has been about completed on more new buildings than at this time in Pittsburg and vicinity in a long time.

The outlook for new building has never been brighter than it is at the present time. By this it is not meant that there will be a rush of large new buildings, for this is not the case. But there will be a large amount of building of the better class, including the smaller office and business structures, large and medium sized apartments and residences of the better class. This will mean that there will be a large number of brick used, and several of the leading local concerns claim that from present indications, the number of brick used in building alone will be about 25 per cent greater than last year, which was, as is well known, much greater than the year previous.

Therefore, the building brick manufacturers are making every effort to get their plants in the best possible condition for a long run this summer, and many of them are making improvements and adding new machinery and equipment, in addition to making general repairs all over these plants.

The paving brick business this year is likewise going to be good, and concerns engaging in this branch of the industry are already rushing and working on full time in order that they may get their stocks of standard shapes and sizes to the point where they will be able to fill almost any sized order which may be placed with them. These stocks will, of course, generally be held in reserve, and shipments made from the kilns wherever possible in order to save extra handling and at the same time preserve reserve stocks for shipment in case of unlooked for emergency. There is going to be a large amount of new paving all over western Pennsylvania, eastern Ohio and West Virginia, especially by the smaller cities and municipalities. This will distribute the brick contracts for this class of brick, for it is usually the policy of such municipalities in this part of the state to place the contracts with local concerns so far as is possible.

Manufacturers of sewer pipe have already experienced a noticeable increase in business, and some of the leading plants in this end of the state are already shipping all that they are able to make, and in one or two cases these same manufacturers are already shipping from their yard stocks.

The fireproofing business has not changed much, although prospects are brighter by far than they were at this time a year ago. The local plants are busy, but the heaviest part of the contract business will not start before the latter part of May or the first of June, when the larger fireproof buildings will be well under way, and deliveries of materials have to be looked after.

Refractory brick manufacturers, especially the leading factor in the Pittsburg district, are very busy, and plants are being operated to about the limit of their capacities. This demand is occasioned by the improvement and general prospect for a busy summer in the iron and steel business, and no chances will be taken in case linings burn out, or collapse. Stocks of refractory brick of the best grades are very low, and as soon as current orders are caught up with, the stocks will be increased on all standard sizes and mixes just as rapidly as possible.

The Harbison-Walker Refractories Company, Farmers'

Bank Building, Pittsburg, has been awarded a contract for several hundred thousand shapes and standard silica brick to be used in re-lining the blast furnace and stoves at No. 3 Furnace at the Ohio Works of the Carnegie Steel Company, Youngstown, Ohio. The shipments will be from kilns and also from stock.

The annual meeting of the stockholders of the National Fireproofing Company was held at the general offices of the company in Pittsburg on April 7, with John R. Gregg, a director, in the president's chair. The following directors were then elected to serve during the ensuing year: D. F. Henry, John H. Jones, James J. Booth, Henry M. Keasby, R. W. Allison, E. V. Johnson, Frederick Gwinner, Jr., W. A. Dinker, J. B. Finley, William A. Stone, John R. Gregg, T. Hart Given, Hay Walker, Jr., W. D. Henry and E. H. Straub. The only change in the directorate was the resignation of W. A. Wilson, who has retired on account of poor health.

The report of President W. D. Henry was an excellent one, being much better than that of a year ago. He stated that the company had retired bonds to the extent of \$250,000 on April 1, of this year, and that the company now has bonds amounting to \$80,000 in the treasury at the present time which mature in 1911, leaving an even \$1,000,000 in bonds still outstanding.

During the past year the company has furnished terra cotta hollow tile fireproofing for about seven hundred residences, and Mr. Henry stated that during the present year, it will furnish the same material for at least three thousand residences and dwellings.

The Clearfield Brick Manufacturing Company, Clearfield, Pa., has increased the authorized issue of capital stock from \$50,000 to \$450,000, and will make a large number of important improvements and changes at the plant at Clearfield. The concern has been and is a paying one, and is known as turning out some of the finest clay and silica brick in the Clearfield field. It is understood that at least the greater part of the increase in stock has been subscribed by the old stockholders. The improvements will be started at once and completed as soon as possible this spring, when the plant will be modern and up-to-date in every respect.

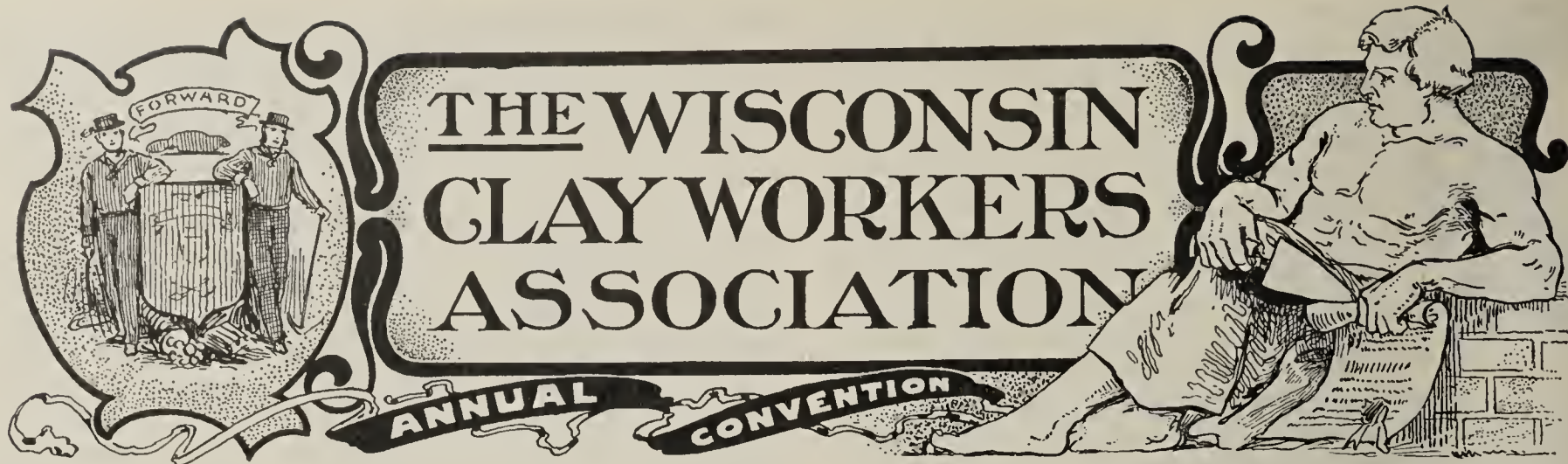
The E. Bigelow Company, New London, Ohio, has been incorporated under the laws of the state of Ohio with an authorized capital stock issue of \$75,000 by E. Bigelow, E. O. Bigelow, J. L. O'Hara, C. E. Ward and A. N. White, all of whom are residents of New London. The company will engage in the manufacture of tile, brick and various other clay products.

The Three Fox Clay Products Company, of West Toledo, Ohio, is the name of another new concern that has just been incorporated under the laws of the state of Ohio, and which will engage in the manufacture and sale of all classes of clay and similar products. The incorporators of the concern are G. H. Fox, Elizabeth Fox, George Kunder, G. Schmietsbauer and F. M. Smith, all of West Toledo and Toledo.

One of the largest orders for vitrified glazed hollow tile that has ever been placed will soon be announced, and a number of Pittsburg concerns are bidding on this contract. It will call for 3,700,000 pieces, which will be used for foundation purposes, and will be awarded and used by John Roebeling & Co., well-known manufacturers of wire rope, Philadelphia, Pa.

A. SMOKER.

Ever since the day when the Trojans gave that famous wooden horse that was loaded inside with soldiers to their enemies within the city there has been a disposition to look the big gift horses in the mouth, notwithstanding the old saying that we must not do so. In this we can find the explanation for doubts and questionings that arise about the proposed Rockefeller foundation. But it does not give us much enlightenment as to just exactly what is in the back part of this great oil magnate's mind in connection with this new proposition.



PROCEEDINGS OF THE TENTH ANNUAL MEETING.

Held at Milwaukee, Wis., Feb. 23-25, 1910.

The tenth annual convention of the Association was as successful as could reasonably be anticipated. It was unfortunate that a large number of the Wisconsin clay manufacturers were not present to receive the benefits of the instructive papers and discussions of such specialists as Professor A. V. Bleininger and Mr. H. E. Ashley, of the Clay Testing Laboratory of the U. S. Geological Survey, whose thoroughly practical papers were specially prepared for the Association. Prof. E. R. Jones's paper on Drainage Conditions in Wisconsin was especially important and Mr. H. L. Ekern, Deputy Insurance Commissioner, gave a very valuable discussion of mutual fire insurance.

This year's convention was the tenth anniversary in the history of the Association. That the work of the Association in its first decade has been a grand success no one will doubt who has been in attendance at the annual meetings or who has read the results of our deliberations in the annual proceedings. That there is much yet to accomplish in improving our condition as manufacturers of clay products, is also evident, and therefore, we look forward to greater benefits to be derived and greater accomplishments to be achieved in the future.

The attendance at the convention was approximately the same as last year, sixty-seven being enrolled on the Secretary's register. The hotel accommodations at the St. Charles were good and congenial in every respect.

The joint session with the Engineers' Society of Wisconsin at the Plankinton Hotel was a pleasant innovation and was of mutual value to both organizations. At the joint session Prof. Bleininger presented a valuable discussion on "Strength of Clay Products." J. S. McCullough gave a useful talk on "Concrete Pavements;" Mr. G. C. F. Vater read a paper on "Producer Gas Kilns;" Mr. M. W. Blair gave the results of the committee report on the "rattler" test, and Mr. W. P. Blair, the President of the N. B. M. A., gave a fascinating talk on "Properly Constructed Brick Pavements," illustrated with stereopticon views.

The banquet on Thursday night, at which about fifty members were seated, will always be remembered as a very pleasant function of the convention.

First Session, Wednesday, Feb. 23, 1910.

The convention was called to order by President L. T. Crabtree about 2:30 in the afternoon.

President Crabtree: Since the program was printed it has been decided to have the President's address tomorrow evening at the banquet. For the present I will say that I am pleased to see the gentlemen who are here. While it is too bad that there is not a larger attendance at our first session, we certainly expect that there will be more tomorrow. While we leave out the President's address, we will otherwise fol-

low the program. We will now have the report of our Secretary, Mr. Samuel Weidman.

SECRETARY WEIDMAN'S REPORT.

Mr. President and Members of the Clay Manufacturers' Association:

My appointment as Secretary of the Association by the Executive Committee to fill out the unexpired term of Mr. Oscar Wilson, was dated Oct. 25, 1909.

On Dec. 16, a meeting of the Executive Committee was held in Milwaukee, the following members being present: L. T. Crabtree, John Ringle and S. Weidman. Mr. L. H. Cordes was unable to be present on account of illness. The motion was made and carried that the tenth annual convention be held Feb. 23, 24 and 25 at the



President John Ringle, Wausau, Wis.

St. Charles Hotel. The general outline of the program was discussed and arrangement made for the attendance at the convention of Professors A. V. Bleininger and H. E. Ashley, of the U. S. Geological Survey, Pittsburg, Pa.

EXCHANGE OF PROCEEDINGS WITH IOWA ASSOCIATION.

In a letter to Secretary C. B. Platt, of the Iowa Brick and Tile Association, Jan. 7, 1910, I suggested the advisability of exchanging our annual proceedings with members of the Iowa Association. This suggestion received the hearty approval of Secretary Platt, and at the following meeting of the Iowa Association, Jan. 11-13, 1910, it was voted to exchange their annual proceedings with the Wisconsin Association, with the understanding of the extension of a similar courtesy from the Wisconsin Association.

A similar arrangement was discussed with Secretary Hartwell, of the Illinois Association, but was informed that the Illinois Association does not print their proceedings in pamphlet form.

I would suggest, therefore, that the Association adopt the plan of sending our annual proceedings to members of the Iowa Association in exchange for the same courtesy from the latter, and that a similar arrangement be entered into with the Illinois Association and also other state associations as soon as expedient.

PRINTING OF ANNUAL PROCEEDINGS.

The cost of printing our annual proceedings has been increasing at a rapid rate in recent years, partly on account of the increased number of pages in the proceedings and partly on account of a much higher rate of printing per page. Secretary Wilson, in

his message to the Association, offers a suggestion in regard to this matter which should receive your consideration. It seems to me that there is a limit to the size of the volume and the cost of our proceedings which should not be exceeded.

FINANCIAL STATEMENT.

I should not fail to mention the fact that I have had to contract some bills, mainly for printing, a small amount of postage, and for badges. A formal report of these bills will be submitted in the next annual report.

IN MEMORIAM.

Your attention is called to the fact that since our last annual meeting the Association has lost by death Mr. Bernhard Truber, of Wonewoc, Wis. I would recommend that resolutions of condolence be passed by this Association.

In closing, I wish to express my gratitude to the members of the Executive Committee for assistance in preparing for the present convention; also to express my appreciation to the various members and others who have generously consented to appear on the program, especially to those contributors who live outside of the state who have taken an especial interest in the work of this Association.

Respectfully submitted,

S. WEIDMAN, Secretary.

President Crabtree: You have heard the report; if there is no objection or correction it will stand approved.

On account of illness, our Treasurer, L. H. Cordes, is absent and his report will be read by the Secretary.

TREASURER'S REPORT.

Mr. President and Members of the Association:

I beg to submit for your consideration my report of the money



Secretary S. Weidman, Madison, Wis.

received and paid out during the year as follows:
Financial Statement for 1909—

RECEIPTS.

Feb. 14, by Cash from Oscar Wilson.....	\$ 14.52
Feb. 27, by Cash from Oscar Wilson.....	75.00
March 23, by Cash from Oscar Wilson.....	25.00
Sept. 13, by Cash from Oscar Wilson.....	100.00
Oct. 12, by Cash from Oscar Wilson.....	44.00
Oct. 29, by Cash from Oscar Wilson.....	25.00
Total	\$283.52

DISBURSEMENTS.

Feb. 19, to Cash for Book.....	\$.10
Feb. 27, to Cash for Draft.....	.10
Feb. 27, to Cash to Cramer-Krasselt Co.....	26.00
March 23, to Cash to Cramer-Krasselt Co.....	10.25
March 23, to Cash, Oscar Wilson.....	55.80
Oct. 12, to Cash, Kenfield-Leach Co.....	165.30
Oct. 19, to Cash, Oscar Wilson.....	18.31
	\$275.86

Balance\$ 7.66

Accompanying this statement is a draft for the balance of \$7.66, made payable to S. Weidman, Secretary.

Respectfully submitted,

LOUIS H. CORDES, Treasurer.

Following this report the chairmen of the several stand-

ing committees, including those on railroad rates, legislation, publicity and mutual fire insurance, read their reports, which were listened to with much interest. No definite action was taken in either instance.

President Crabtree: The next is the appointment of special committees. I will appoint the following:

Auditing Committee: A. W. Hilker, W. J. Craney, E. H. Korrer.

Committee on Resolutions: C. W. Lansing, H. J. Votaw, E. R. Frazier.

Committee on Nominations and selection of next place of meeting: G. W. Kennedy, F. L. Sanborn, J. W. Hinkley.

After the appointment of special committees, the Secretary then read a number of letters from absent members. A short recess was then taken and at its conclusion, Mr. H. L. Ekern, Deputy Insurance Commissioner, was introduced. He read a valuable paper on mutual fire insurance, in which he declared that there was no reason why the Wisconsin clay-workers could not organize an insurance company which would be permanent and result in furnishing them insurance at the least possible cost.

After a lengthy discussion on this subject, Prof E. R. Jones, of the Wisconsin State University, was introduced. He read the following paper:

DRAINAGE CONDITIONS IN WISCONSIN.

PROF. E. R. JONES.

Mr. President and Gentlemen of the Convention:

By every possible means the Department of Soils has been gathering information on the drainage conditions that exist in Wisconsin. This department keeps in touch with drainage commissioners, drainage engineers, drainage contractors, tile makers and tile layers who have been and still are instrumental in the developments along drainage lines. On the list of correspondents are also the names of farmers whose lands have been benefited by drainage. Data received from these sources have been verified by field observations made by members of the regular department staff, and in those newer portions of the state where little or nothing has been done to improve the natural conditions of drainage, reconnaissance surveys have been made to ascertain existing conditions. A summary of the information at hand was published in 1907 in Bulletin 146 of this Station. The purpose of this discussion is to review the material contained in that bulletin, and to present some of the additional data that have been collected since that time.

Mr. Delwiche, Superintendent of the Northern Sub-Stations, reports that the tile laid at Superior and Ashland in the red clay soil (Soil No. 1, indicated on accompanying map) are increasing in efficiency. Surface drainage is maintained equally on both the tile drained and the underdrained plots, yet crop returns are decidedly in favor of the tile drained land, which was formerly the wettest portion of the experimental farms. The fact that investigations show that about one-half of the area in the Lake Winnebago region, which was formerly in urgent need of tile drainage, has been tiled, is significant. It shows that that type of soil which, in its natural condition seemed the most impervious to water of any of the soil types shown on the map, yielded itself very readily to intelligent tile drainage.

As far as we know, no tile has been laid as yet in the soil of Class 2. A few lines of tile laid near Vesper in the soil of Class 3 are reported as being successful. The areas of Class 2 needing drainage consist of wet ravines having poor natural drainage and pot holes having no natural drainage at all. In Class 3 there are a few pot holes, but by far the largest portion of the poorly drained land of this class is found in broad, flat areas—some quarter-sections being as uniform as a floor, and having a surface slope of less than a foot in eighty rods. Typical areas are found south of Thorp in Clark county. A system of drainage is being installed by the Experiment Station in a small area of this type of soil and also upon a pot hole area on the farm of Roe and Peterson at Stanley, Chippewa county. The failure of the project is predicted by a majority of the local people—the Presbyterian minister and the mayor of the city and the laborers from the sawmill, who dug the trenches for the tile, alike sharing in this unbelief. It is probable that the tile would do their work very slowly in this retentive soil. A system of furrows for surface drainage has been developed on a large part of this area in order to make it produce anything at all, but it seems reasonable to expect that tile properly laid will aid these furrows to some extent. However, that is not the vital question. A system of furrows properly developed is a make-shift that affords fair drainage, and it may be wise to let "well enough" alone for the present. Our real concern is with the pot holes and with the flat areas on which furrow drainage is impossible, due to lack of slope and owing to the distance to an outlet ravine. Unless the subsoil is open and unsaturated, tile seem to be the only means for draining pot holes and flat areas, where the fall is limited and the outlet is a half mile or more away. Easily two-thirds of the poorly drained land in this clay is thus unfortunately located. I hope and believe that the tile will be successful, but, if not, we must work out some new method.

By far the greater portion of the soil of Class 4 that is tilled lies in the eastern part of the area, so that in the western part—in

Dodge, Jefferson, Washington and Dane counties—a great deal of land still awaits the drain tile. I pass over Class 5 as being comparatively unimportant from the drainage standpoint. The same is true of Class 6, with a passing note that the land in this class needing better drainage usually lies along streams in the valley bottoms. The drainage of these lands can not be materially improved until the beds of the streams are straightened and lowered by means of steam dredges or otherwise.

The unfortunate feature of the movement to drain peat and muck marshes is that it began on the marshes underlaid with and surrounded by sand in the Wisconsin River valley. In southeastern Wisconsin are marshes that have been kept sweet by the lime washed in from the surrounding clay upland. Many of them have decomposed and received sediment until they will not burn when dry. The soils thus formed are muck, and are more valuable than the soils of the peat marshes. To make a bad job worse, the majority of the peat marshes whose drainage has been attempted, have been only half drained. The land owners have almost invariably ceased in their efforts as soon as the dredge ditch was completed. Very few laterals of small open ditches or tile have been installed to discharge into the main ditch. The result is that usually less than eighty rods on each side of the ditch are benefited. On a few marshes the other extreme has been practiced. Small open ditches have been dug, and lines of tile have been laid before

draining yet to be done in Wisconsin, another is the lack of tile factories in northern Wisconsin. Brick are burned in Douglas county and it does seem that there should be a tile factory there. The tile makers have a patriotic duty to perform in the development of Wisconsin agriculture. They help us to educate the farmers of the state. One salesman for a tile firm has done effective work in this line, to my knowledge, during the past season. However, don't make the mistake of advising the farmer to lay tile where the outlet is doubtful or where the depth of digging is prohibitive for the present. There are plenty of areas needing drainage that can be drained with ease. Let us attend to these first and to the more difficult cases later.

There is hardly a tile factory in the state with which I have corresponded that could not sell nearly twice their present output if their plants were larger. Some of you seem to be satisfied if you can make tile enough for your own community. It seems reasonable to suppose that if each factory operated on a larger scale, the cost of manufacture could be lessened. This would put Wisconsin tile makers on a footing where they can better compete with the two or three larger firms in Illinois that ship a great many car loads of tile into Wisconsin each year. Wisconsin has clay enough that her clayworkers should be able to make every drain tile she needs. (Applause.)

President Crabtree, Mr. Stoll, Mr. Hammerschmidt and Mr. Korrer briefly expressed the thanks of the members for the instructive paper, but the hour was late and general discussion was deferred. An adjournment was taken to Thursday morning.

SECOND SESSION.

Thursday Morning, February 24.

The members gathered for the second session shortly after 9 o'clock in the convention hall. There was to be a joint session with the members of the Engineering Society of Wisconsin at 9:30 o'clock, but before adjourning there was an informal discussion as to the details of the banquet to be held that evening, after which an adjournment was taken to the Plankinton House for the joint meeting.

Joint Session of the Wisconsin Clay Manufacturers' Association and the Engineering Society of Wisconsin.

Dean F. E. Turneure, President of the Engineering Society, announced the opening of the meeting of the combined societies and said that President Crabtree would preside.

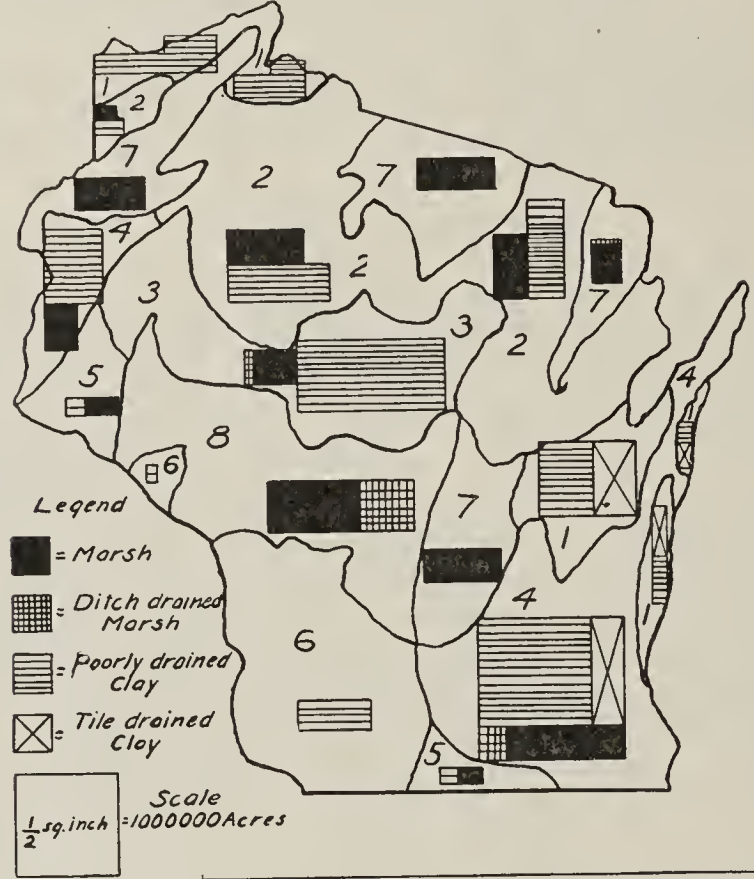
Chairman Crabtree: Gentlemen of the Joint Convention, I am very sensible of the high honor you have conferred upon me in allowing me to preside at this joint meeting of the conventions of the Wisconsin Engineers and Clay Manufacturers. In union there is strength, and what better union is there than that of two organizations, one engaged in manufacturing for the trade the best possible and most durable material for all building purposes that there is on God's earth and the gentlemen who, through their engineering knowledge and work in that line, tell us what to do and how to do it and put matters in shape so that we can take care of the work that comes afterward. The first paper on the program was to have been a paper by Prof. E. R. Jones, but that we heard yesterday at our session because the Professor could not be able to be here this morning. The first number this morning will be the paper by Mr. G. C. F. Vater, of Dayton, Ohio.

Mr. Vater read a similar paper before the National Brick Manufacturers' convention, held in Pittsburg in February. (See paper in February issue of THE CLAY-WORKER, in which was published the full verbatim report.)

Mr. J. S. McCullough, City Engineer of Fond du Lac, then read a paper on "Concrete Pavements," which was discussed at some length. (This paper, with the discussion, is printed in the annual proceedings of the Engineering Society of Wisconsin for 1910.)

Prof. Bleining, of the U. S. Geological Survey, Pittsburg, then read a most interesting paper on "The Strength of Clay Products." This paper will appear in a subsequent issue of THE CLAY-WORKER.

President Crabtree then called upon Mr. Seastone, who told of some experiments which he had conducted to determine the co-efficient of expansion of clay products in which paving brick, drain tile and vitrified sewer pipes were used. The expansion was found to be about the same as that of concrete. Secretary Weidman then called upon Mr. M. W.



No.	Description	Poorly Drained		
		Acre	Marsh	Clay
1	Red Clay	2000000	1/2	1300000
2	Lost Glacial Clay on Granite	6000000	1/2	600000
3	Old " " " " " "	3000000	1/2	1000000
4	Lost " " " " Limestone	6000000	1/2	2000000
5	Old " " " " " "	1500000	1/2	50000
6	Residual Clay	6000000	1/2	300000
7	Sandy Soil of last Glaciation	5000000	1/2	700000
8	Residual Sandy Soil	5000000	1/2	700000
	Total	34500000	2725000	5250000

Compiled from estimates made in Bulletin 146 Wis. Exp. Sta.

General Map of the Soils of Wisconsin, Showing Drainage Condition in 1907.

an adequate outlet was provided. The failure of such projects is no discredit to intelligent drainage.

Open ditches six or eight feet deep are always necessary on marshes or other flat areas to remove surface water and to provide outlets for underdrains. Shallow depressions or "dry ditches" should be used to aid the underdrains where the surface drainage is poor. Open ditches two or three feet deep on deep peat marshes had better precede the tile by two or three years; but there is no excuse for butchering the surface of muck marshes with shallow open laterals, where there is sufficient fall for tile. During the past season, in Columbia county I observed a wet swale of about ten acres through which three angling ditches three and one-half feet deep and eight feet wide at the top had been dug with a capstan ditcher. The muck was only about two feet deep and the waste bank exposed the raw clay of the subsoil. Had the cost of this ditching, which is temporary at best, been spent on tiling, the meadow would not have been cut up into miserable unsightly fragments, but instead a permanent system of drainage would have been installed, which would convert the area into one of convenience and beauty.

Twenty years hence the estimates represented on the map may be underestimates. As the value of land increases, cultivation will become more intensive and land will be tiled with profit that we would never think of tiling under present conditions. One thing that the map does show with certainty is the vast amount of tile

Blair to give his report on the "Rattler" test used for paving brick. After that, Mr. W. P. Blair, the President of the N. B. M. A., gave an instructive talk on "Properly Constructed Brick Pavements," which was illustrated with many stereopicon views. The hour was very late and, at the close of his paper an adjournment was at once taken until 2 o'clock, when each society resumed its session. Mr. Blair's paper was originally read at the national convention in Pittsburg, and has already been printed in THE CLAY-WORKER, the official organ of the National Association, and it also appears in the annual proceedings of the Engineering Society of Wisconsin for 1910.

THIRD SESSION.

Thursday Afternoon, February 24.

President Crabtree presided at the afternoon session. After some discussion of business matters, the Secretary announced that he had just received an interesting paper from one of the members on brick silos.

The Secretary then read the following paper by Mr. C. Gminer, of Waupaca:

THE GMINER BRICK SILO.

CON GMINER, WAUPACA, WIS.

Mr. President and Members of the Wisconsin Clay Manufacturers' Association:

One of the objects of this Association and of this annual meeting of Wisconsin makers of clay products is to extend the market for our manufactured product, to increase legitimately and permanently the demand for brick, etc. I believe, yes, I am sure, that I have for presentation to any manufacturer of brick, a proposition which will result in greatly increasing the demand for brick in all farming districts.

The day has come when every really progressive farmer and dairyman sees the vital necessity of having upon his place a silo, and every year witnesses the construction of scores of such structures in every county. They are built as follows: Of wood—a cheap way at the beginning, but expensive in the long run, because such construction is not durable; of stone—a costly method and not very satisfactory because such construction is not frost-proof, and further, it is liable to crack and let in air; of concrete—an exceedingly expensive method and faulty for much the same reasons that apply against stone silos; of brick—the ideal way, if such construction can be made frost-proof and air-tight. Such a brick silo is handsome in appearance and almost everlasting, but heretofore the strong and almost insurmountable objection to such construction has been that it did not completely and always exclude air, moisture and frost. These were fatal defects, for air and frost in a silo are as damaging to its contents as the same agents would be to the canned fruits which the housewife so carefully prepares in the days of summer's plenty for the tickling of your palates during the season of winter. Because of these faults, there are in Wisconsin very few satisfactory brick silos, also too few brick dwellings, brick cellars and brick barn basements.

Last November I was granted a patent (No. 939826) upon a method of construction for brick silos, which makes them absolutely moisture-proof, yet my method adds but little to the expense of construction. Now please do not jump to the conclusion that my scheme of construction is untried and merely experimental. Prior to the granting of my patent, I erected many brick silos in Waupaca county after this method of construction, and they have given perfect satisfaction. I therefore know just what I'm saying when I guarantee that a brick silo, constructed according to my plan, will exclude air, moisture and frost and preserve the ensilage in sweet and succulent condition, no matter how long it remains in the silo. That these brick silos make handsome structures, a real ornament in any group of farm buildings, is plainly shown by the accompanying photographs of silos which I have erected in this county. Such members of this Association as are engaged in the manufacture of brick readily understand that great impetus would be given to the business if silos of brick were to become the rule rather than the exception—and they will surely become the rule when it is made plain that, if built according to my plans, the brick silo will meet the requirements as to durability, beauty, airtightness and frost-proofness. It means multiplied orders for brick from every county in the state and it should interest every maker of brick. (Applause.)

This was followed by Prof. Bleininger's paper on "The Functions of Lime in Clays," one of the most interesting and instructive papers ever read before the Association. This and the excellent paper which followed by H. E. Ashley, also of the U. S. Geological Survey, on the subject "The Effect of Dissolved Substances Upon Clays," will appear in a subsequent issue. The authors, with their multitudinous duties, have not, as yet, been able to revise the papers.

After a long discussion of Mr. Ashley's paper by Prof. Bleininger and Messrs. Nagle, Ashley, Crabtree and Weidman, Mr. Ashley gave a brief talk, illustrated by many excellent lantern views of one of the large potteries at East Liver-

pool, Ohio, showing the general methods of working the clays and burning the wares. This paper was highly instructive and was discussed by several members.

President Crabtree called for Mr. Ringle's paper on "Railway Rates," but that gentleman said that before he read his paper he would move that the thanks of the Wisconsin Clay Manufacturers' Association be tendered to Prof. Bleininger and Mr. Ashley for their very able and pleasing papers and valuable talks. This motion was seconded by several members and was carried by a rising vote.

RAILWAY RATES AND THEIR INFLUENCE ON THE CLAY INDUSTRY OF WISCONSIN.

BY JOHN RINGLE, WAUSAU, WIS.

It is not unusual for clayworkers to encounter difficulties. They are noted for their patience and perseverance under conditions which seem discouraging in the manufacture of their product. Individual resources, however, reach a limit when it becomes apparent to the clay product manufacturer that the quality and superiority of his product is not the only factor essential to success, but that the cost of delivering his product to the consumer is also an important feature and threatens to destroy the fruit of his labors.

The subject assigned to me, "Railway Rates and Their Influence on the Clay Industries in Wisconsin," opens up a question relating to various interests, and a large field for contention. I will aim to treat the subject in a spirit of fairness to all interests concerned.

If the present rates for the transportation of clay products in Wisconsin are upon a basis of equity between the railroads, the manufacturer and the public, then we have no good reason for complaint. If, however, the contrary is true, if the condition of transportation rates on clay products in Wisconsin is destructive of the clay industry, then we not only have a right, but it is our duty in the public interest to voice our complaint and endeavor to procure a remedy. The limited time I have been able to give to an investigation of the subject compels me to speak only of brick.

Statistics tell us that the manufacture of brick in Wisconsin is not in a flourishing condition; that the quantity of brick manufactured in Wisconsin has materially decreased, and that the number of operating firms has also grown less. I will not compare with the year 1908, for that was a year of general depression in the building line, and statistics for 1909 are not available. There was a decrease of 28,000,000 in the quantity manufactured from 1904 to 1907, and the operating firms became 21 less during the same period. Statistics also tell us that the average price of the common brick in Wisconsin was \$6.61 per 1,000 in 1904, \$6.76 in 1905, \$6.51 in 1906, \$6.43 in 1907 and \$6.43 in 1908. A Wisconsin newspaper publishes it as an odd fact that the average price of common brick at the kiln decreased from \$6 in 1907 to \$5.73 in 1908. The years of 1906 and 1907 were a period of high tide in the building line. All other materials, especially lumber, scored higher prices, and dealers enjoyed great prosperity. Not so with the Wisconsin brick manufacturer. During these years and until the present time he has been obliged to sell his product at reduced prices, notwithstanding the cost of living and of labor, which latter constitutes at least 90 per cent. of the cost of his materials, has increased not less than 25 per cent. This is not a theory, but a condition. I will not claim that the consumption of brick in Wisconsin has decreased, but the contrary is true. And the fact that the fire loss on buildings in this country by reason of the use of a large percentage of combustible material in their construction, exceeds \$200,000,000 per annum, \$2.50 per capita, and the constant decrease of the volume of that product, together with the well known superiority of brick for all building purposes, can not fail to produce a constant increase of the use of the brick manufacturer's product.

What, then, are the influences which operate against the progress of the brick manufacturing industry in Wisconsin. Two reasons seem plain—undue advantages enjoyed by brick manufacturers in adjoining states, because of low rates for the transportation of their product into Wisconsin, and the high rates charged for the transportation of the local product. It is evident that the charges for the transportation of brick manufactured in Wisconsin, especially for distances understood by "short haul," are excessive. I speak of the short haul because the average brick manufacturer is limited to that as a business territory, by reason of the weight of his product, and the almost universal distribution of material for brick manufacture. Before proceeding to make comparisons on brick rates, I will also state my conviction that it does not seem quite equitable that the rate for the transportation of brick should be placed so near the lumber rate. That the freight on 1,000 brick, involving practically no risk in transportation, for a distance of fifteen miles should be \$1.40, and on 1,000 feet of lumber of at least double value, requiring more car space and greater liability of loss, should be 80 cents, or that a carload of 15,000 brick should pay \$21 for the distance, while a carload of 15,000 feet of lumber is charged \$12. And, besides this, lumber has the advantage of a joint tariff, when shipped on two or more roads, while brick must pay full short haul rates on every road when transported on two or more lines. We must, for instance, pay approximately 7 cents per 100 pounds for a distance of thirty miles on two roads, while the lumberman gets a joint rate, and the Chicago brick manufacturer can transport his product to the same place over 300 miles on a 9-cent rate.

A more comprehensive view is, however, obtained by comparing the transportation rates on brick in Wisconsin with the rates on the same material in adjacent states. As a rule, there is a distance tariff in some instances, called maximum rates, and a com-

modity rate. The Wisconsin product is carried, with very few exceptions, at the distance rate. Milwaukee, Jefferson and Manitowoc have commodity rates to a few points. The concessions, however, are not important. Menominee and Merrimac have a commodity rate to various points and concessions of 1½ to 2 cents per 100 pounds. I will not quote the Wisconsin distance tariff. It is sufficient to say that the rates are higher than that of any of our neighbors and nearly the same on the several roads. Iowa has a distance tariff which averages about 1 cent per 100 pounds less than the Wisconsin rate. I have failed to obtain the commodity rates from that state. Illinois has a maximum rate as high as the Wisconsin distance tariff; but as far as I have been able to ascertain brick is carried as a rule at a commodity rate. Chicago, for instance, has a commodity rate on all lines in every direction, averaging about one-half to two-thirds of the Wisconsin distance tariff. Generally 2 cents per 100 pounds 10 to 15 miles, 2½ cents 15 to 25 miles, 3 cents 25 to 35 miles and 3½ cents to 75 miles and over. Distances in which Wisconsin rates would reach 3½ to 6 cents per 100 pounds. In the interior of Illinois they have commodity rates per ton, which average about the same as the Chicago rates. Chicago also has a commodity rate to all railroad points in Wisconsin, which average considerably lower than the Wisconsin rate. This, together with the further fact that Chicago brick, such as it is, is produced at a cost of about one-third less than the Wisconsin brick and in connection with the high rates charged for the transportation of the Wisconsin product, is what most seriously affects the industry in our state. I will quote in this connection the words of a gentleman in authority, who transmitted to us the Michigan rates. He says: "This scale is the result of a joint conference between the carriers and brick manufacturers. A great many of the Michigan rates are considered lower than this scale. This is caused by the fact that brick is manufactured at Chicago and placed on the cars much cheaper than it can be manufactured in Michigan at the small individual plants, thus forcing the carriers to protect the Michigan industry by publication of rates much lower in many instances than the agreed scale." The agreed scale in Michigan referred to in the quotation is:

to 10 miles,	2	cents per 100 pounds.
10 to 20 miles,	2½	cents per 100 pounds.
20 to 40 miles,	3	cents per 100 pounds.
60 to 70 miles,	4	cents per 100 pounds.
80 to 120 miles,	5	cents per 100 pounds.

It will be seen that this is 1 and 1½ cents per 100 pounds less than the Wisconsin rate. And many of us would consider this scale a great relief without the additional concessions referred to. Can not Wisconsin carriers do as well for the Wisconsin industry?

The Minnesota distance tariff on short haul is as follows:

10 miles,	2	cents.
30 miles,	3	cents.
50 miles,	4	cents.
85 miles,	5	cents.
100 miles,	5½	cents.

Thus averaging fully 1 cent per 100 pounds less than the Wisconsin rate. Minnesota manufacturers also have commodity rates which are much lower to various points and points in Wisconsin.

In the state of Indiana brick are transported on a commodity rate per ton. The rate is not uniform, but averages about one-half the Wisconsin rate.

The following are quotations:

5 miles,	20 cents per ton;	1	cent per 100 pounds.
15 miles,	30 cents per ton;	1½	cents per 100 pounds.
50 miles,	50 cents per ton;	2½	cents per 100 pounds.
75 miles,	60 cents per ton;	3	cents per 100 pounds.

The rates in Ohio are upon the same basis and, if anything, lower than in Indiana. It is quite evident that these facts have contributed much toward the growth of the industry in these states.

For the purpose of this paper, the quotations of carrying rates on clay products in adjacent states are necessarily few; sufficient, however, to demonstrate that the Wisconsin industry is at great disadvantage. If the rates quoted are right, then the Wisconsin rates are excessive. The situation does not affect all manufacturers alike, but seriously burdens all who transport their product wholly or in part by rail, and means that the Wisconsin clay industry does not have an equal opportunity in the commercial world. It seems to have been treated in the past as a sort of stepchild by the transportation lines, perhaps on the theory that he who does not kick appears not to be tickled. It does not seem probable that the Wisconsin carriers will hesitate to grant equitable conditions to an industry which must necessarily produce the building material of the future and consequently the bulk of the carrying trade in that line.

The remedy, it would seem, is in the line with the Michigan quotation. With an equal opportunity, there is no doubt of the growth and development of the industry in Wisconsin. Wisconsin has the raw material and our people are as progressive, build as good homes and public institutions as do our neighbors. Manufacturers are not the only ones interested, the carriers and the public are equally benefitted by a more extensive development of the clay industry in Wisconsin.

I wish to acknowledge that I am indebted to the President and Secretary of this Association for many of the statistics referred to. (Applause.)

This paper was discussed at some length by Mr. Kennedy, who had been Chairman of the Railway Rate Committee and had charge of negotiating with the railroads for lower rates.

A history of his work was given. Satisfactory arrangements had not been accomplished and he was willing to start a new fund to bring the whole matter before the State Railroad Commission. Mr. Vogt, as a member of the Railway Committee, gave a supplementary statement to that of Mr. Kennedy, in which the condition of rates in Milwaukee was discussed. The conditions at present are just as they were before negotiating with the railroads. Mr. Vogt also brought out the fact that a mistake was probably made in not getting rates lowered on short hauls, from 10 to 40 or 50 miles rather than on long distance hauls of 150 to 250 miles. President Crabtree thought a good time to bring the matter before the Railroad Commission would be next winter during the session of the Legislature. He said the matter was important and that rates were seriously handicapping the brick industry in Wisconsin. Secretary Weidman expressed the opinion that the Railroad Commission would be inclined to fully consider the subject of rates on brick if the matter was formally brought before it. Mr. Hotchkiss told of his experience in getting a reduction of freight rates on crushed stone and suggested that the matter be taken up directly with the railroads first, before a formal hearing with the Commission. Major Hinkley said that switching charges and rates at Green Bay were not satisfactory. He said the railroad company had failed to carry out its agreements in regard to brick.

President Crabtree: It is our desire to take up as much business as possible, so it has been suggested that we take up one of the articles on the program for tomorrow. We will hear Mr. Stoll's paper, "The Manufacture of Drain Tile."

Mr. Stoll: When your Secretary wrote me he asked me to prepare a paper on the manufacture of drain tile. The manufacture of drain tile is always made by the stiff-mud process. I will not speak much of the manufacture of brick, but will speak of the manufacture of drain tile.

THE MANUFACTURE OF DRAIN TILE.

G. C. STOLL, WHEATON ILL.

The first great essential in locating a clay manufacturing plant is the raw material, which should be in sufficient quantities to insure operations for a goodly number of years, and should be free from all foreign substances, especially limestone and lime gravel, which is so injurious to all clay products. Another essential is the market of the manufactured ware, and another is the transportation facilities. Presuming that you have, or can find, the foregoing essentials to your reasonable satisfaction, we will take up the manufacture of the ware. On account of Wisconsin's limited or undeveloped beds of shale, we will not discuss the method of manufacturing ware from this material, but will confine ourselves to an economical method of manufacturing ware from alluvial clays.

In building a new plant or remodeling an old one we should certainly advise that you secure the services of an engineer who is familiar with this class of work, to come to the proposed location, survey the ground and make plans and specifications which will be essential to the economical operation of the plant.

If boilers are to be used we should determine the maximum horse power required to operate the plant, including tile machinery, conveyers, crusher and winding drum, also the fans (if necessary), pumps and such other accessories as require power. We recommend that you double the boiler capacity determined above, as by so doing you can operate your plant with either boiler, and you will have sufficient steam to operate a steam dryer, without lessening your output on the tile machine.

The engine should be at least one-third larger than the maximum horse power required, and if fans are used for drying, an auxiliary engine should be supplied, so that the large engine and line shafting would not be required to run at night. If electricity is used as a motive power, we recommend that you procure a motor of at least double the required power to operate the tile machine. The reason for this is that when you leave the tile machine full of clay from the previous day's run, the clay becomes set and stiff, and fully twice as much power is required to start the machine as is required to operate it after the set clay is moved out.

Buildings. We recommend all buildings to be made from brick or hollow block, making the factory as near fireproof as possible. The boilers should be partitioned off from the engine, and should be covered with steel roofing. There should also be a partition between the engine and the tile machine room, and the engine room covered with steel roofing. The tile machine room should be amply large to permit making repairs and supplied with numerous windows for light and ventilation. The operators should not be required to work very near moving belts, and all set screws should be countersunk or wrapped with leather or a piece of belting. The factory should be supplied with such tools as will be required from time to time. A couple of jack screws and a chain tackle should not be overlooked. Whether the buildings be brick, hollow blocks or lumber, there should be a water tank set high enough to afford fire protection, and fire hose should be kept permanently in at least four places in the factory. We would

recommend a clay storage shed or building, as in most factories of moderate capacity more clay can be drawn in in a day than can be used, and the surplus can be dumped in the storage shed to be used rainy days, late in the fall or early in the spring. We would recommend the storage shed to be about thirty feet wide and as long as desired, having a conveyor in the center covered with loose planks. The clay can be drawn down to the conveyor and fed automatically into the crusher and balance of the machinery. A cheap and satisfactory way of harvesting clay is to form the clay bank into a slope, plow the clay up and down the slope, and use a clay gatherer or wheel scraper to gather the clay and dump into clay cars from a bridge. Then draw the cars up into the storage shed. If the clay is desired in the machine, dump it onto a slide over the crusher, where the winding drum man can push it into the crusher. If the clay is not required at the machine, have it dumped into the clay storage shed.

Machine Setting. In purchasing boilers, the manufacturers of such boilers have prepared a set of specifications which are sent to the purchaser, giving depth of foundations, thickness of walls, location of roller plates and pedestal, width and length of firebox, thickness of fire brick linings, and such other information as may be necessary to set the boilers in the best possible manner. The engine builder will also have specifications, which he insists shall be followed in setting the engine. You are apt to follow both these specifications religiously. You will also engage the services of a competent engineer and fireman, but do not neglect the clay machinery. Give such machinery also a good foundation, making it as rigid as possible. Use a good grade of oil and engage a competent man to look after it, and you will be happily surprised to note its long life and perfect services.

Testing and Preparing Clay. If you are a new beginner and are at a loss how to prepare your clay to get the best results, we would advise that you send four or five barrels of clay to some company that has facilities for testing. They can determine what machinery is necessary to best prepare your clay, will also advise you what style of dryer you can best use, and will advise you what degree of heat you can safely subject your clay to without injury. We would not recommend you to send your clay to some friend or neighbor to be tested. Not because your friend would not treat you fairly or do your clay justice, but because he can not. His machinery is filled with his own clay, and he can not afford to stop operations, have all the machinery cleaned out, to give an accurate test of your clay alone, and if you put your clay in his machine on top of his clay, you will get a mixture and not an accurate test of your own material.

A great deal of attention should be paid to the preparation of the clay, as upon this depends largely the success of the factory. Were the writer using a tough, sticky clay, he would, if possible, use a plow and scrape the clay as mentioned before, then dump it into a granulator, pass it between crusher rolls into a pug mill and then into the tile machine. If the clay were not so tenacious the granulator would be eliminated. Where the clay is close grained and difficult to dry, we have found it advantageous to use a sharp sand. If sand is not easily procured we would advise grinding up broken burnt tile. Of course, we do not expect to make broken tile, we rather expect there will be none broken, but if we did not have any we could break a few. The sand or ground tile opens up the clay and allows the moisture to evaporate more readily. We also recommend that the tile be run through the machine as soft as is possible, making them just stiff enough for careful handling.

Drying. When the weather man has his glad smile on, the outdoor or rack and pallet system is the cheapest mode of drying, but this method can only be depended on for a short time during the year, and the extra handling and loss incidental thereto makes this method very expensive. The company testing your clay can inform you what method would be most successful for your material. Where possible we would recommend the system of waste heat dryer, using the exhaust steam from the engines with heat from cooling kilns. The dryer would possibly have to be constructed to suit your clay, but the operation would be cheap and efficient. However, we do not advocate too fast drying, as our experience has shown us that most all alluvial clays make better ware when dried slowly. For instance, if we found that a certain clay could be dried in twenty-four hours on a pinch we would recommend a longer pinch, say thirty-six or forty-eight hours. It must be taken in account that the longer it takes to dry a ware successfully the larger must be the dryer of whatsoever kind.

Kilns. There are several kinds of kilns advertised and advocated by their inventors, and possibly all have their good points. We will not discuss the continuous kilns, because for a moderate sized factory the cost of a continuous would be prohibitive. The writer is partial to round down-draft kilns, having a perforated or partly perforated floor. In this latter type there may be 18, 24 or 32 openings in the floor connecting with the underground ducts that lead to the stack. The number of openings depend upon the size of the kiln. We would advise a separate stack which can be used for one, two, three or four kilns. If used for more than one kiln a partition should be made in the stack from all four corners, dividing the bottom of the stack in four compartments. This partition should be built up six to eight feet high. This will allow each kiln to burn independently. Local conditions govern largely the height and size of stacks. In building a kiln we would recommend that every course of brick on the outside of the kiln above the firebox arch be protected by kiln bands. This may appear as if we were in collusion with the steel companies, but really no more, or at most only one more band would be required by this style of banding than to band a kiln well by the old method. Starting at the firebox arch we would stand the next weather course on end, the 2½-inch face to the weather. Then lay a header on top of the upright course. Stand another upright course

on the header, and continue this manner of laying to the top of the kiln wall. Four-inch bands for the body of the kiln will cover three-quarter inch of the brick standing on end and all of the flat header, leaving the bands 6¾ inches apart. Five-inch bands will cover 1¼ inches of the brick standing and all the flat header, leaving the bands 5¼ inches apart. The top or crown band we would make of steel 8 inches wide by ¾ of an inch thick, having two pairs of lugs to each band. In this manner of banding no course of brick can be pushed out of the kiln by expansion. The writer also favors the open firebox, having slanting grates or no grates, firing on the kiln bottom; however, that is a matter of preference with the fireman, as some prefer closed fireboxes and flat grates and get equally good results.

Burning. Unfortunately there are no set rules for burning clays, but some general rules must be followed in burning all clays. First, a small fire should be started to gradually start the moisture from the ware; this should be increased a little with each firing until the water smoke or moisture has all disappeared. Then the fire should be raised quickly and forced through the bottom of the kiln as rapidly as possible. The writer maintains that most all clays can be burned by admitting air through the firing arch into the firebox and is positive that the air so admitted keeps the top of the kiln from being overheated, and assists in driving the heat to the bottom of the kiln. We would not recommend firing a kiln at stated intervals; for instance, every hour or every half hour, or three-quarters, regardless of whether some fireboxes needed replenishing or not. Close attention to the burning should be given at all times, and the fires should be replenished when needed, whether every fifteen or twenty minutes or every half hour. Many times a fireman does not need a shovel to replenish a certain firebox, but can lay a piece or two of coal on the fire with his hand. This applies to the open fireboxes. We think in the closed boxes with the flat grates the best results can be obtained by firing often with small quantities. If no pyrometer or cones are used in burning we would recommend that the trial pieces be used, placing them at the top and bottom of the doors, as few of us can get good results by the color of the fire method of burning. In conclusion, will say that we favor large kilns, say thirty feet inside diameter, having two openings for filling and emptying. In filling, the ware can be brought to the door of the kiln and placed on a conveyor, which conveys it to the far side, center or near side where the tossers and setters can be constantly supplied. Mule trucks are very advantageous in unloading kilns, as they can be brought into either opening of the kiln, loaded and taken to the yard or car.

We trust that these suggestions will aid you in your present plant or in building a new one. (Applause.)

I had a little case of this kind once. I went to see a gentleman about a dryer. His clay was a river silt, close-grained, but very hard to dry. In talking to me he said that he did not understand why he could not dry his clay. He had had it tested. I asked him where. He told me. I said, "Did the gentleman stop the operation of his factory and clean the clay out of the machine, or did he put your clay on top of his?" He said he did not know. I asked him if he paid him. He said, "He didn't ask me anything. I sent the clay over there and he tested it." I said, "Your clay is a black color and his is red and blue, and when this clay came out of the machine there were red and blue streaks in the black." He said that was right. I said, "That was his clay mixed with your clay and when they dried it, it dried well and it burned perfectly." He said, "That is right; you must have been there." I said, "No, I wasn't there; only that happens frequently in mixing shale with clay." "Now," I said, "you are trying to run this clay alone and you are making a poor success of it." He said that was true. So, in testing clay, do not try to test it by sending it to some friend. If you do not have a good test you are liable to think that the friend has turned you down because he doesn't want you in competition with him. But send it to some company that can make you an impartial test. (Applause.)

Chairman Ringle: Some gentlemen have been designated to discuss this paper. The discussion is led by Prof. Bleininger.

Prof. Bleininger: Mr. President, I enjoyed Mr. Stoll's paper immensely. It is full of good suggestions. I would like to ask for information, however, on one or two little points. I do not think that I could get a better man on the witness stand than Mr. Stoll. He is the very man that I am always anxious to get information from. In case he had a clay that is particularly pernicious in showing lamination—I have had one or two lately and I do not know what to do to keep them from laminating—I would like to ask what procedure he would adopt in dealing with such clay. Whether he would make any changes on the barrel of the machine.

Mr. Stoll: With the clay that laminates, I do not think it is so much the fault of the machinery as it is the fault of the clay itself. Anyway you change the barrel of the machine

would hardly ever take the lamination out, but you could assist by putting grog in it and cutting it up. Most all clays that laminate badly are soapy. The smooth surfaces caused by the turn of the auger come together and consequently they do not unite very well. If you can ruffle that up with grog you can overcome it to quite an extent. Sometimes a double wing auger will laminate. If you could not get a single wing auger quick enough, just knock off one of the wings of the double wing auger and make a single wing auger. But the addition of grog is the best thing that I know of. I had a case in St. Louis. They had a red soapy clay. We took a piece of steel and bored some holes in the wing of the auger at the edge and let these pieces stand out like a piece of sawblade so as to tear it up. That helped, but it wasn't enough. So we recommended the use of grog. As soon as they put in 25 or 30 per cent of grog that lamination disappeared. In making fire brick they used for different brick different proportions of grog, 25 per cent, 50 per cent, and in the highest grade 75 per cent, and I have nearly always found that the addition of grog would help.

Prof. Bleininger: I would like to ask Mr. Stoll what he thinks of the benefit derived from extending the barrel beyond the auger, whether that helps any?

Mr. Stoll: Yes, that helps a little, and then when we do that, the man that runs the factory says, "Here, you are using up about twice as much power as you did in the first place," but that will help it.

Prof. Bleininger: Just one more question, Mr. Stoll. Do you prefer the water or steam lubrication? Do you prefer all steam lubrication in every case?

Mr. Stoll: Wherever I can I would use the water lubrication, but I would use it with a steam pressure. I would like to have the dies, or the front connected with a pipe from the boiler. It is what we call a steam lubricating die, but it is really a water lubricating die.

Prof. Bleininger: We find, in many instances, that the use of water under pressure to be the best thing for lubrication. What is your opinion as to the use of a granulator?

Mr. Stoll: If you have a clay which might contain stones, we will say, from the size of your thumb may be to the size of your fist, and you are digging your clay with a steam shovel and all the stones come in, you can not extract them very well. If the clay is a sticky clay and very plastic, you could not run it through a crusher very well, but you can chop it up in a granulator. It is not only helping to mix, but to chop the clay loose from the stones so that the stones can be separated; then pass it into the crusher and then into the pugging mill. But nearly all the clays I think would be better worked if they could be dried first and then pulverized. I have seen lots of clay that you could take out of a bank and put a piece into a bucket of water and in the morning you could pick that piece of clay out again. But dry that clay and then put it in the bucket of water and you have mud.

THE BANQUET.

Thursday Evening, February 24, 1910.

At 7 p. m. the members sat down to a bountiful repast served in the dining hall of the St. Charles Hotel. Orchestra music, interspersed with songs, was furnished by Weaver Bros., one of the best colored orchestras in Milwaukee. After dinner, the President gave his address, postponed from the first session, which was received with much enthusiasm.

PRESIDENT'S ADDRESS.

L. T. CRABTREE, CRANDON, WIS.

Mr. President and Gentlemen of the Convention:

I am very much pleased to see such a large number of clay manufacturers and representatives of allied interests present at this, our Tenth Annual Convention. The constantly increasing interest and attendance at these annual meetings of the craft indicate that there is a constantly growing interest in the production of brick and other clay products in Wisconsin, though we are years behind other states in the middle West in this respect.

We come to these meetings principally for two things—to greet old friends and for the instruction that we get from the various papers that are read and discussed on the floor of the convention, and the many "shop" talks that are always going on about the lobbies and other places in the headquarters hotel.

The general good fellowship feeling that always rules here will satisfy the one object, and the fine program that our Secretary

has prepared for us and the able men who will handle the various subjects guarantee that all here who are interested in any of the different lines of clay production who stay through this convention will go away better able than before to handle the different problems that are always presenting themselves to each one about his daily work.

Though the brick manufacturer is rather more affected by local conditions than the manufacturer in any other line, nearly all have profited to some extent by the general betterment in business conditions that has been steadily going on since our last convention. There has been a little more building, a little more tendency towards building less of wood and more of brick and other material that can not burn; and the cement block craze is gradually dying out. The following from the Evening Wisconsin of February 18 may be of interest to you: "A recent test of reinforced concrete as a possible material for the construction of land defenses revealed the surprising fact that a 12-inch gun can pierce twenty feet of such material. A projectile going at its highest velocity cut through a concrete wall of the thickness mentioned that was reinforced by heavy steel beams, and it is calculated that a projectile can go through three additional feet of such material before its power is utterly spent. The test is important, as concrete is material that can be readily handled for the construction of defensive walls. It may convince the War Department that it will be necessary to face concrete walls with steel after the manner in which ships are armored, or to use steel entirely for the barbettes and create turreted forts like the fort that has been erected for the defense of Manila bay." The stuff won't even stop bullets.

August 12, Mr. Oscar Wilson, who, as President and Secretary for the past five years, has done so much to build up our organization to its present strong position, moved to North Dakota to go into the banking business, and advised me that it would be necessary for him to resign his position of Secretary. Your Executive Committee decided to accept his resignation, and Prof. Samuel Weidman was offered the Secretaryship for the balance of the convention year. Prof. Weidman decided to accept the position and—well, the well known modesty of the gentleman prevents my pursuing the subject any farther, but, as a quotation is always in order when a speaker is stuck, I will use one here, "Deeds speak louder than words."

Brick manufacturers, especially those whose plants are located on the line of the C. & N. W. railway, are still hard hit by the inequitable and apparently needless cut-throat competition of the cheap Chicago made brick; inequitable and needless because, due to the extremely low freight rates made into the farthest Wisconsin territory, while holding up the local Wisconsin rates to the highest point, the natural movement of trade in brick in local territory is hampered or prevented altogether, the brickmakers are shut out from going after any business where the railroad haul is more than a few miles; and the railroads lose a lot of short-haul business that would pay relatively a much higher rate than they charge from Chicago into Wisconsin territory. It would be truly interesting to know why they do it. And it is a condition that seems very hard to overcome.

As it has been impossible for our railroad committee, in spite of the very hard work that they have done, to get any permanent relief from the railroad companies, or any concessions to offset the very low rates they are making on brick from the Chicago brick yards into a large part of the Wisconsin territory, and, owing to the fact that this business is interstate and not subject to control by the State Railroad Commission, it would seem that the only thing left for us to do is to go to the next Legislature and try to get a bill passed lowering the freight rates in local Wisconsin territory to a point as low in proportion as the rates they are making from Chicago into Wisconsin territory, figuring on the mileage haul, either by distance tariff or commodity rates, so that our Wisconsin brickmakers will have a fair show to get a reasonable proportion of the business in their own territory. From all the information at hand, freight rates on brick in Wisconsin, compared with the rates made other states, in some cases by the same railroad companies doing business in Wisconsin, are altogether too high, and they should be compelled to make as low rates in Wisconsin as they are making in other states of the central West.

Mr. Ringle's paper on this subject will tell you what we are getting from the railroads and it will pay you to pay close attention to it. In looking this matter up, I wrote to the State Railroad Commissions of Minnesota, Iowa, Illinois, Indiana, Ohio and Michigan. I received replies from all of them, but some of them could give me no particular information. The commissions of Iowa, Illinois and Indiana sent me copies of freight rates on brick in force in their states and members wishing to look them over will find them on the Secretary's desk. As you will learn from the report of the Insurance Committee, the chances for organizing a mutual insurance company are not very good under existing laws. The last Legislature fixed up the insurance laws so that we are apparently knocked out; and I have an idea that the State Insurance Department is largely to blame for it.

The Deputy State Insurance Commissioner is to give us a paper on the subject and, if it seems that he is one of the guilty parties, you will please notice that, owing to the rather isolated situation of this hall, it would be a considerable time before a hurry-up call for the patrol wagon could bring results. If, however, he will show us a way out we might accept that in partial extenuation for our blasted hopes.

One of the principal reasons why the clay manufacturing business in Wisconsin is not in as prosperous a condition as in other states is that our clay manufacturers, as a rule, make nothing but brick, and only one grade at that. If they could or would diversify their products as the clay manufacturers in other states do, they would get large results in increased business and dollars

Of course, I know that some of the clay in our state is not suitable for making anything but common brick, but of much of it a variety of clay products can be made for which there is a ready market at prices that would pay good profits. Drain tile can be made from the most of our Wisconsin clays, and that pays much better than common brick, and for this there would be very little outside competition, for the simple reason that about every drain tile maker outside of Wisconsin has all he can do to supply the local demand.

One of the papers on the program is on the subject of tile drainage, and I urge that as much as possible be made of that paper in the way of joining in the discussion following it.

Those of our members who wish to look up the possibility and practicability of adding something to the product of their brick plants will find in our loyal and enthusiastic members who are in the machinery end of the business interested and helpful listeners.

In conclusion, I urge upon all members the necessity of standing by our organization all the time, not only at convention time, but all through the year. "In union there is strength." No one man can do nearly as much alone as he can when touching elbows with his fellows who are in the same line of work. The spirit of the times is organization, let us make the most of it. (Applause.)

After the President's address, Mr. C. W. Lansing was called upon to give his talk on "Publicity and the Clay Industries." This talk was a part of his postponed report as Chairman of the Committee on Publicity and is therefore embodied in his report at the first session.

Following Mr. Lansing, Mr. J. E. Randall gave a very interesting talk on "Benefits of Association." This was received with much applause.

After Mr. Randall was seated, the President called upon Mr. Harry de Joannis, who was welcomed with much applause. Mr. Joannis spoke of his great pleasure in again meeting with his old friends in the Wisconsin Association, and expressed the hope that the good work of the Association be continued and that he would be able to see the members often in the future. Mr. Kennedy and Mr. Theriault were then called upon and each gave some interesting reminiscences and after that, on invitation of Mr. Moroney, the members adjourned to one of the theaters to see moving picture views of some modern brick machinery in operation.

FOURTH SESSION.

Friday Morning, February 25.

In announcing the opening of the morning session on Friday morning, Feb. 25, President Crabtree said that before listening to Prof. Bleininger's paper he would call on Major J. W. Hinkley for the report of the Committee on Mutual Fire Insurance.

Report of Committee on Mutual Fire Insurance.

Gentlemen: Your committee has to report that owing to the present insurance laws governing the organization of mutual fire insurance companies, it does not seem advisable at present to undertake the formation of a company. We recommend, however, that the Insurance Committee be continued as a standing committee and that it be instructed to continue the investigation of the subject and report at the next convention.

J. W. HINKLEY,
L. T. CRABTREE,
W. J. CRANEY.

Mr. Ringle: I move the adoption of the report. I do not think it is necessary to have a large membership on this committee. I think that the Railway Rate Committee ought to be enlarged, but on this committee it does not make any difference. The chairman of the committee probably will have to do the work. Probably the committee will not have any meeting, but will rely on its chairman.

Major Hinkley: I agree entirely with Mr. Ringle, that there is no necessity of the committee being so large. I think that three on the committee would be plenty. I would like to suggest to the new President, whenever he is elected, that Mr. Crabtree be appointed as chairman of that committee. I think that he is more familiar with the work that can be done, or is contemplated, than any other member of the old committee. In fact, I do not want to serve myself at all.

President Crabtree: You have heard the suggestions, gentlemen. The committee now consists of five members. It is proposed to reduce it to three.

The motion to adopt the report was seconded and carried.

Mr. Ringle: I now move, Mr. President, that this stand-

ing committee on insurance consist of three members of this Association.

The motion was seconded and carried unanimously.

President Crabtree: Are there any suggestions to be made in regard to this Railway Rate Committee?

Mr. Kennedy: I move you that it is the sense of this meeting that the incoming President be the chairman of that Railway Rate Committee and that he be instructed to appoint two men to work in connection with him. That would give the incoming President a chance to pick men that would work with him and he can pick the men that are located where he wants them, and when he goes with that committee to represent us, he is the President of the Wisconsin Clay Manufacturers' Association and that will have some effect. And we ought to be loyal enough to our Association and to our President, whoever he may be—he is the choice of the majority—that when he wants us to assist him, we will assist him. We owe some spirit of patriotism to our business, to our homes and to our families, and that is one way of showing it. We are in the brick business and if we do not fight our own battles, who will fight them for us? This getting dollars and cents for every move we make is something, but we have got to sacrifice something if we are going to gain anything, and when our President—whoever he may be—sounds that fire alarm to go to Madison and do your work among your senators and representatives, we ought to be able to do it, and do it right off. So I move you that the sense of this meeting be that the incoming President be the chairman of this Railway Rate Committee and that he have the power to appoint two men to work with him.

The motion was seconded.

President Crabtree: You have heard the motion, gentlemen, and it is a very good one, indeed; the chairman would have very much more weight as President of the Wisconsin Clay Manufacturers' Association than as chairman alone; that the incoming President be ex-officio chairman of the Railway Rates Committee and appoint his own associates on the committee.

The motion was carried unanimously.

President Crabtree: We will now listen to Prof. Bleininger's paper on "The Combustion of Fuel and the Application of Heat in Kilns." (Applause.)

The paper will appear in full with complete discussion in a subsequent issue.

Great applause greeted the speaker at the conclusion of his paper, showing the high appreciation the members had of the professor's valuable paper.

Mr. Sanborn: I move that we extend to Professor Bleininger our hearty thanks for this paper by a rising vote.

This motion received many seconds and the members did not wait for the formal putting of the question by the President. They were applauding Professor Bleininger as they stood to carry the vote of thanks.

The President then announced that the report of the Auditing Committee was ready and the Secretary read the following report:

Report of Auditing Committee.

We, your Auditing Committee, have examined the reports of the Secretary and Treasurer and have found them correct, and would recommend that they be adopted and placed on file.

A. W. HILKER,
W. J. CRANEY,
E. H. KORRER,
Committee.

President Crabtree: If there is no objection, the report will be accepted and placed on file.

The Secretary then read a supplementary report of the Auditing Committee, showing the financial condition of the Association and its indebtedness of \$194.81 to its former Secretary, Mr. Oscar Wilson.

Mr. Kennedy suggested that the best way to clear up accounts would be to ask for subscriptions among the men who are actually engaged in the manufacture and sale of clay ware, excluding machinery men. President Crabtree heartily endorsed the suggestion. Mr. Craney spoke of the salary due

Mr. Wilson as well as the amount due him for money advanced.

Mr. Hilker: Mr. Wilson certainly served us in the capacity of Secretary most faithfully and to our great good as an organization. It is no more than right that we should pay him what we owe him, and pay it just as quickly as possible. Mr. Wilson took it upon himself to advance that money, and in that way he did a good deed as far as the Association is concerned. It kept up the credit of the Association. I move that we start a subscription list among the clay-workers and see how much we can raise of this money. Let us go in next year with clean hands. I make that as a motion, and the motion includes the adoption of the supplementary report.

The motion was seconded and carried.

The Committee on Resolutions then presented its report, which is as follows:

RESOLUTIONS.

Resolved, That a vote of thanks be extended the officers of the Association for their efficient work and for the excellent program prepared for this convention.

WHEREAS, We greatly appreciate the honor conferred upon us by the presence of Prof. A. V. Bleininger, head of the Ceramic Section of the U. S. Geological Survey, and of Prof. H. E. Ashley, also of the government service, and of Prof. E. R. Jones, of the University of Wisconsin, and Mr. H. L. Ekern, of the State Insurance Department, be it

Resolved, That we tender our thanks to these gentlemen and to the others whose valuable and interesting papers contributed to the program, and be it further

Resolved, That the Association send a cordial greeting to their well beloved former Secretary, Mr. Oscar Wilson, and offer him our best wishes for success in his new field of effort.

WHEREAS, Since our last meeting, one of our esteemed members, Benhardt Truber, of Wonebec, has passed to another life, be it

Resolved, That this Association express its sorrow and sympathy to the bereaved family of the deceased.

WHEREAS, It is desirable that the cost of printing of the proceedings of our conventions be reduced, be it

Resolved, That the Secretary be empowered to eliminate such discussions and other matters as in his judgment are not necessary for publication. We also recommend that the Secretary be empowered to exchange copies of our proceedings with the State Associations of Iowa, Illinois, or other states, if possible.

WHEREAS, The national organization, known as the Building Brick Association of America, offers to the members of this Association substantial aid in the promotion of increased use of our products, be it

Resolved, That the Wisconsin Clay Manufacturers' Association heartily endorses the purposes of said organization and urges upon our members their united and individual support of the publicity work undertaken by the Building Brick Association of America.

Resolved, That the members of this Association are urged to bring to the next annual convention samples of their products for the purpose of forming a complete exhibit of Wisconsin clay products.

C. W. LANSING, Chairman.
H. J. VOTAW.
E. R. FRAZIER.

It was moved, seconded and carried that the report of the Committee on Resolutions be adopted.

The President then announced that Mr. Ringle would read a paper prepared by Mr. McClellan, of the C. W. Raymond Company, on the subject, "Soft Mud Brick Manufacture."

It was much past noon when Mr. Ringle finished the paper. The President said that their time was limited and unless there was some gentleman who wished to take up some particular point they would pass over the discussion of the paper.

The report of the Committee on Nominations was then called for.

Report of Committee on Nominations.

We, your Committee on Place of Meeting and Nominations, beg leave to report as follows:

We would respectfully recommend that the meeting of 1911 be held in Milwaukee.

We hereby nominate the following officers:

For President, John Ringle.

For Vice President, J. B. Theriault.

For Secretary, Samuel Weidman.

For Treasurer, E. H. Korrer.

Respectfully submitted,

G. W. KENNEDY.
F. L. SANBORN.
J. W. HINKLEY.

It was moved, seconded and carried that the report be adopted.

Major Hinkley: I move that the Secretary be instructed to cast the ballot of the Association for the election of the officers named by the Nominating Committee.

The motion was seconded and carried, and the Secretary announced that he had complied with instructions and therefore the gentlemen named by the Nominating Committee were duly elected.

After the newly elected officers had made appropriate speeches, the newly elected President took the chair.

The first act of the new President was to announce that as it was long past the dinner hour and all the members were hungry, he thought a motion to adjourn to 2 o'clock would be in order; whereupon Mr. Hilker promptly made that motion, and the President declared a recess until that hour.

FIFTH SESSION.

Friday Afternoon, February 25.

Only a few gathered for the closing session, for many members had left on the afternoon trains. President Ringle called the meeting to order and appointed the following standing committees for the ensuing year:

Railway Rates—John Ringle, Wausau; G. W. Kennedy, Manitowoc; A. W. Hilker, Racine.

Legislation—F. L. Sanborn, Portage; F. Vogt, Milwaukee; W. J. Craney, Kenosha.

Publicity—Samuel Weidman, Madison; Oscar Zimbal, Sheboygan; C. W. Lansing, Chicago; George H. Hartwell, Chicago; J. E. Randall, Indianapolis.

Mutual Fire Insurance—L. T. Crabtree, Crandon; S. Gunther, Port Washington; J. G. Hamilton, Grand Rapids.

Secretary Weidman then stated the result of the subscription list to be \$68.

Mr. Crabtree: Mr. President, I have a suggestion to make. It was moved that we pay Mr. Wilson a salary of \$50 a year. It was so voted. He served half a year and we owe him for that. I think that we ought to give some instructions to the Secretary to pay that when he can. We owe Mr. Wilson and we owe Professor Weidman.

Secretary Weidman: There is nothing owing to me for discharging the duties of the Secretary for the past year, and there probably won't be for next year. I don't know what that resolution was last year, but it does not need to apply in my case. Anything that I can do for the Association I will be glad to do.

Mr. Crabtree: I had a talk with Professor Weidman along that line and I appreciate his disinterestedness. We are willing to accept him at his word. But some arrangement should be made with Mr. Wilson, so that he should be paid, even though he did not put it in his bill.

Mr. Sanborn: Wouldn't it be well to instruct the Secretary to pay it during the course of the year, if he has the funds? Secretary Wilson advanced a good deal of this money that we owe.

Secretary Weidman: I think after the Secretary has got in all the money that he can get in from the membership and has received the bill for printing the proceedings and has received the money for advertising, that at that time it may be necessary in order to balance up the accounts to borrow a small sum, or else he will have to pay it out of his own pocket in order to even up matters to that time. That should not be a very large sum, and there is no reason why, with what we have on hand now, most of the indebtedness to Mr. Wilson could not be paid at once.

President Ringle: I do not think there is any particular record to be made of this business, but that can be the understanding, and probably that is sufficient, unless you desire that you make that as a record.

Mr. Sanborn: I think, Mr. President, that we should make a record of it, so that it will show at the next meeting, and there won't be anybody to kick at it.

President Ringle: Then I understand that the Secretary of the Association in settling up the business affairs of the Association is authorized to borrow enough to square the Association in full, and that we assume that indebtedness as an Association and the payment of the interest on it.

Mr. Crabtree: I make that as a motion.

Mr. Sanborn: I second the motion.

The motion was carried unanimously.

President Ringle: I will say that so far as the officers of this Association are concerned they will be glad to receive any suggestions at this time or at any time during the year in regard to the business of the Association, and I would like to ask your frequent correspondence and advice.

Secretary Weidman: As Secretary I second that suggestion. I would be very glad to receive any suggestions that you may have to make during the year.

There being no further business before the meeting, the President declared that the convention stood adjourned subject to the call for the next annual meeting.

List of Members of Wisconsin Association.

Thos. N. Adland, Northcape, Wis.
S. L. Alexander, Fond du Lac Pressed Brick Co., Fond du Lac, Wis.
Chas. Ambrose, Chicago Mine, Mill and Supply Co., Chicago, Ill.
Athens Brick and Tile Co., Athens, Wis.
Barron Red Pressed Brick Co., Barron, Wis.
S. Bertler Sons Co., Manitowoc, Wis.
F. D. Biesanz, Winona, Minn.
Prof. A. V. Bleininger, U. S. Geol. Survey, Pittsburg, Pa.
John C. Boss, Elkhart, Ind.
Ben. H. Bright, Black River Falls, Wis.
Prof. E. R. Buckley, Rolla, Mo.
Burnham Bros. Brick Co., Milwaukee, Wis.
Chicago Brick Machinery Co., Chicago, Ill.
Chicago Retort and Fire Brick Co., Chicago, Ill.
Clifford Chase, 305 Lincoln avenue, Milwaukee, Wis.
L. H. Cordes & Co., Watertown, Wis.
L. T. Crabtree, Crandon, Wis.
W. J. Craney, Kenosha, Wis.
W. A. Drowley, Menomonie, Wis.
Excelsior Brick Co., J. P. McLean, Menomonie, Wis.
E. J. Fehlman, Phoenix Mfg. Co., corner Center street and Humboldt avenue, Milwaukee, Wis.
John C. Fellenz, 725 Caswell Bldg., Milwaukee, Wis.
E. R. Frazier, Chambers Bros. Co., Chicago, Ill.
Fred Freese, Monroe, Wis.
Ed. Fricke, Manitowoc, Wis.
Wm. Fricke, Manitowoc, Wis.
D. E. Gilman, Brown Deer Lumber Co., Milwaukee, Wis.
Chas. A. Gould, Main Belting Co., Chicago, Ill.
Gunther Bros. Brick and Tile Co., Port Washington, Wis.
J. G. Hamilton, Grand Rapids Brick Co., Grand Rapids, Wis.
Wm. Hammerschmidt, Lombard Brick and Tile Co., Lombard, Illinois.
Geo. H. Hartwell, "Clay Record," Chicago, Ill.
Chas. H. Heise, Suring Brick and Tile Co., Suring, Wis.
Hilker Bros. Brick Mfg. Co., Racine, Wis.
Maj. J. W. Hinkley, Green Bay Brick Co., Green Bay, Wis.
Improvement Bulletin, I. J. Covey, Minneapolis, Minn.
Jefferson Brick and Tile Co., Jefferson, Wis.
Harry de Joannis, Chicago, Ill.
Kemmeter Bros., Jefferson, Wis.
G. W. Kennedy, Manitowoc Clay Products Co., Manitowoc, Wis.
Kentucky Fire Brick Co., Portsmouth, Ohio.
E. H. Korner, Fond du Lac Pressed Brick Co., Fond du Lac, Wis.
C. W. Lansing, "Brick," Chicago, Ill.
Thos. N. Larson, Larson Brick and Tile Works, Shawano, Wis.
Frank Lowater, Chippewa Falls, Wis.
Marengo Brick Co., Marengo, Wis.
Matthews Gravity Carrier Co., Merriam Park, St. Paul, Minn.
F. McClellan, C. W. Raymond Co., Dayton, Ohio.
Wm. Meadows, Burlington Brick and Tile Co., Burlington, Wis.
Norman L. Meier, Norman Coolie Brick Works, La Crosse, Wis.
G. B. Mentz Co., Wallkill, N. Y.
Ohio Ceramic Engineering Co., Cleveland, Ohio.
C. J. Peterson, Ellsworth, Wis.
Pickands, Brown & Co., L. C. Stingle, Colby-Abbott Bldg., Milwaukee, Wis.
Otto C. Plessner, Orenstein-Arthur Koppel Co., Chicago, Ill.
C. & A. Potts Co., Indianapolis, Ind.
J. M. Powell, Indiana Drain Tile Co., Brooklyn, Ind.
J. D. Pratt, Menomonie, Wis.
T. A. Randall Co., THE CLAY-WORKER, Indianapolis, Ind.
W. D. Richardson, Richardson-Lovejoy Eng. Co., Columbus, O.
John Ringle, Ringle Brick Co., Wausau, Wis.
L. E. Rodgers Eng. Co., Chicago, Ill.
F. L. Sanborn, Portage, Wis.
Geo. J. Schwartz, Ricketson & Schwartz, Milwaukee, Wis.
Harry Serier, Suring Brick and Tile Co., Suring, Wis.
Omer Smith, H. Brewer & Co., Tecumseh, Mich.
G. C. Stoll, American Clay Machinery Co., Wheaton, Ill.
J. B. Theriault, Chippewa Falls, Wis.
Thew Automatic Shovel Co., Lorain, Ohio.
Wm. Truber, Wonewoc Red Pressed Brick Co., Wonewoc, Wis.
U. S. Engineering Co., St. Louis, Mo.
Van Wie Construction Co., Kenosha, Wis.
G. C. F. Vater, C. W. Raymond Co., Dayton, Ohio.
Jacob Voelker, Winona, Minn.
Ferdinand Vogt, Milwaukee Builders' Supply Co., Milwaukee, Wis.

H. J. Votaw, J. D. Fate Co., Plymouth, Ohio.
A. O. Wachter, Falls Brick and Tile Co., Sheboygan Falls, Wis.
Waupaca Brick Yard, Con Gminer, Waupaca, Wis.
Samuel Weidman, Madison, Wis.
Western Builder, Milwaukee, Wis.
L. C. Whittet, Edgerton, Wis.
Aug. With, Jr., Centerville Brick and Tile Co., Hika P. O., Wis.
Oscar Wilson, Donnybrook, North Dakota.
Wisconsin Brick Co., H. A. Smythe, Madison, Wis.
Zerrenner Bros., New London, Wis.
Oscar Zimbal Brick Co., Sheboygan, Wis.

COMPETITION FOR A \$4,000 BRICK HOUSE.

DURING THE PAST year the Clay Products Association of America held a \$10,000 brick house competition, which resulted in a large number of interesting plans and designs being submitted to the jury of awards, the best of which were used in the Association's booklet, styled "The House of Brick." So successful was this competition that the Building Brick Association, the present name of the national publicity organization, the outgrowth of the Clay Products Association of America, has started another competition.

This year's competition is for a \$4,000 brick house, the contest being held in the hopes that suitable plans and designs will be obtained for use in the publication of a second edition of "The House of Brick."

The "Brickbuilder," of Boston, the brickmakers' leading architectural magazine, is promoting this competition for the Association. Prizes aggregating \$1,000 will be offered for the four best designs complying with the rules and regulations specified in the competition program. The first prize winner will be awarded \$500.00, the second \$250.00, the third, \$150.00, while the fourth will receive \$100.00. The competition closes June 1, 1910.

In the March number of the Brickbuilder the program for the competition is given as follows:

The problem is a small brick house suitable for a family of moderate means.

The location may be assumed in any town, small city, or suburb of a large city.

The cost of the house—exclusive of the land—shall not exceed \$4,000; method of heating, plumbing, other fixtures, and finish to be governed by the limit of cost.

A detailed statement of cost must accompany each design, this statement to be typewritten on one side only of a sheet of paper measuring 11 inches by 8½ inches.

Designs which in the opinion of the jury call for a house which would cost more than the amount named will not be considered.

The object of this competition is to obtain designs for Small Brick Houses. This is a problem which will have a very great deal of interest for very many people. Not all those who wish to live in mansions can do so—the great majority must house themselves from limited means. If we seek to improve the architecture of our country-side we shall find a fruitful field in the development of the small house along rational lines, depending for the element of beauty upon the designer's ability to treat the problem with intelligence and skill. It is hoped that the results of this competition will help to point the way to a better class of moderate cost houses to the end that here in America we shall become possessed of a domestic architecture which in its simple beauty will compare favorably with the best that Europe has to offer.

To summarize and emphasize the requirements—this competition calls for a Small Brick House, the cost of which is not to exceed \$4,000.

Construction: There are no restrictions as to general type of construction except that the exterior walls are to be built of brick.

There is to be but one drawing, on one sheet a pen and ink perspective, without wash or color, drawn at a scale of 4 feet to the inch. Plans of the first and second floors at a scale of 8 feet to the inch. A sketch showing detail of front entrance. In connection with the plan of the first floor show as much of the arrangement of the lot in the immediate vicinity of the house as space will permit. The plans are to be blocked in solid. A graphic scale must accompany the plans. The brickwork must be clearly shown on the perspective and detail. Make or style of brick is not to be mentioned on the drawing.

The size of the sheet is to be exactly 24 inches by 18 inches. Strong border lines are to be drawn on the sheet 1 inch from edges, giving a space inside the border lines 22 inches by 16 inches. The sheet is to be of white paper and is not to be mounted.

The drawing is to be signed by a *nom de plume* or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawing is to be delivered flat, or rolled (packaged so as to prevent creasing or crushing), at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before June 1, 1910.

Drawings submitted in this competition are at owner's risk from

time they are sent until returned, although reasonable care will be exercised in their handling and keeping.

The designs will be judged by three or five members of the architectural profession.

In making the award the jury will not consider those designs which obviously would cost more to execute than the limit set, \$4,000. With this limitation, excellence of design will be given first consideration, and plan second.

Written for THE CLAY-WORKER.

NORTHWESTERN CLAYWORKERS MEET.



THE NORTHWESTERN Clay Association, which is composed of brick manufacturers of Minnesota principally, although there are some from Wisconsin in its list, held a lively meeting early in April in Minneapolis, the gathering being a quarterly meeting, planned to start just before the opening of spring. This season the plans were awry, for spring opened early, and in many of the plants the first of April found preparations well under way for starting spring work—something like six weeks ahead of last year. The result was that the attendance was held down to a smaller gathering than was expected, but it made up in vim and enthusiasm, and an excellent meeting was the result.

President J. W. L. Corning, of St. Paul, was detained from the meeting by the death of his partner, Fred Greiner, of Chaska, Minn., which happened the same week. Vice-President Ira Jones presided through the sessions in his stead.

The gathering devoted its attention to means and ways of developing interest in the use of brick, and to that end, it studied the methods which have been successfully used in other directions and on behalf of other materials.

An important part of the meeting was that devoted to the consideration of a set of standard specifications for common and sand lime brick for the city of Minneapolis. James G. Houghton, Inspector of Buildings for the city of Minneapolis, at the January session had invited the organization to appoint a committee to confer with him on the subject, and at this gathering he presented a set of tentative specifications and tests. The original draft provided for an absorption test, which excluded all brick exceeding 22 per cent in the absorption test, and limiting the average to 18 per cent. This was vigorously attacked as being unjust and unfair to common brick. It was declared that common porous brick, which would withstand the crushing test would not pass that test, while they would endure frost and a freezing test which impervious brick would not stand, without spalling and chipping off. It was explained that the porous material allowed the frost to expand in the voids, while the solid material had to break. After debate along this line, the inspector suggested the substitution of a freezing test for the absorption test, and this was regarded as much better. Many felt that a crushing test of 1,800 pounds average was too high, but there was a fair number who were satisfied with that requirement. The use of hollow blocks was brought up, but the inspector pointed out that the proposed ordinance did not affect them since they came under a separate classification. He favored the use of brick and block for residence construction as a means of providing a greater fireproof construction than was possible with frame construction. The inspector admitted hollow tile for dwelling construction, if it had a strength of at least 800 pounds. The proposed specification as submitted by the inspector was finally referred to a committee of President J. W. L. Corning, of St. Paul, Ira C. Jones, of Minneapolis, and A. L. Martin and Axel Anderson, of Minneapolis. The specifications and the proposed ordinance, as changed, read as follows:

It shall be unlawful to use clay or sand-lime brick, in the construction of any building or structure within the city of Minneapolis, that does not conform to the standard herein set forth for such materials.

The material shall be subjected to the following tests: Trans-

verse, compression and freezing. Additional tests may be called for when, in the judgment of the Inspector of Buildings, the same may be necessary. All such tests shall be made at the Testing Laboratory of the Department of Buildings, or at some other laboratory of recognized standing, under the direction of the Inspector of Buildings.

The results of such tests, whether satisfactory or not, shall be kept on file in the office of the Inspector of Buildings, and shall be open to the public.

For the purposes of such tests, at least five (5) samples shall be provided, and more when required. Such samples shall represent the ordinary commercial product, and may be selected from stock by the Inspector or his representative. The samples shall be approximately eight (8) inches long, four (4) inches wide and two (2) inches thick.

These tests shall be made in a series of at least five (5).

The transverse tests shall be made first, on full sized samples, 8x4x2 inches.

The resulting half samples shall then be used for the compression and absorption tests; but in no case shall both halves of the same piece be used in the same series of tests.

The transverse test shall be made as follows: The sample shall be placed flatwise on two rounded knife-edge bearings set parallel, seven (7) inches apart. A load shall then be placed on top, midway between the supports, and transmitted through a similar rounded edge until the sample is ruptured.

The modulus of rupture shall then be determined by multiplying the breaking load in pounds by twenty-one (21), (three times the distance between supports in inches), and divided the result by twice the product of the width (approximately four) in inches by the square of the depth (approximately two) in inches.

The compression test shall be made as follows: The sample shall first be thoroughly dried. It shall be carefully measured, then bedded flatwise in either plaster-of-paris or blotting paper to secure a uniform bearing in the testing-machine, and crushed. The total breaking load shall then be divided by the area in compression in square inches.

A freezing test shall be made as follows: The sample shall be thoroughly dried and weighed, and then immersed in a pan or tray of water to a depth of not more than one-half inch for at least four (4) hours, and then weighed. It shall then be placed in a refrigerator or a freezing mixture, or otherwise subjected to a temperature of not more than fifteen (15) degrees Fahrenheit, for at least twelve (12) hours. It shall then be removed and placed in water, where it shall remain for at least one (1) hour, the temperature of such water to be at least one hundred and fifty (150) degrees Fahrenheit. This operation shall be repeated twenty (20) times, after which the sample shall be weighed while still wet from the last thawing. Its crushing strength shall then be determined, as called for in regulations for compression tests.

The freezing and thawing process shall not cause a loss in weight greater than ten (10) per cent, nor a loss in strength of more than thirty-three and one-third (33 1-3) per cent, except that when the lower figure is still above eighteen hundred (1,800) pounds per square inch, the loss in strength may be neglected.

The following requirements shall be met to secure the acceptance of the materials: The modulus of rupture shall average 450, and shall not fall below 350 in any case. The ultimate compressive strength shall average eighteen hundred (1,800) pounds per square inch, and shall not fall below fifteen hundred (1,500) pounds in any case. The percentage of absorption, being the weight of the water absorbed divided by the weight of the dry sample, shall not average higher than eighteen per cent (18%) and shall not exceed twenty-two per cent (22%) in any case.

The reduction of compressive strength shall not be more than thirty-three and one-third per cent (33 1-3%), except that when the lower figure is still above eighteen hundred (1,800) pounds per square inch the loss in strength may be neglected.

The name of the firm or corporation manufacturing any brick so tested, and the names of the responsible officers thereof, shall be furnished the Inspector of Buildings to be by him placed on file, and any changes of the same shall be promptly reported to said Inspector.

The tests hereinbefore mentioned shall be repeated at any time when called for, on samples selected in the open market, when there is any doubt as to the brick being in conformity with these regulations.

A very interesting address was that of W. Siwart Smit, of the Twin City Brick Company, of St. Paul, on the work of the National Brick Manufacturers' Association with reference to developing a wider interest in the use of clay products, by circulating information and suggestions along that line. He pointed out the great possibilities for the industry if there were a heavier use of brick in place of frame construction and other, there being, he estimated, but one in ten jobs of brick, and he urged pursuing the possible business of the

other nine to fighting in cutthroat competition for the one, which was to use brick. He figured the saving from the use of brick in the decreased insurance premiums, the lessened requirements in fire protection and the general betterment of buildings.

Eugene Young, Secretary of the Minneapolis Builders' Exchange, spoke on co-operation, which he declared was about synonymous with organization since the one was not possible without the other. He urged that brick manufacturers keep out of the fields of other manufacturers in the way of shipping from their own centers clear across the state into the fields of others, where they certainly could not sell as cheap as the home man, and yet they paid freight in order to sell their product, and the railroad was the only one who made anything out of it.

I. C. Jones told of the good work of the National Association and sought to apply it in a local form to the organization here. He urged conservation and economy in the development of the business, and the application of business sense in the sale of the product.

Joseph Wild, of Morton, Minn., told of how he had developed business in small structures by showing that chicken coops and farm buildings could be built cheaply and well of brick and would last and serve so much better.

The following resolutions were adopted:

In view of the great scarcity of bricklayers, which of necessity limits the use of brick and tile for general construction purposes, greatly to the detriment of our farming community and general public, and

WHEREAS, There is at the present time a general cry for conservation of natural resources, which can not be furthered in any better way than by the construction of fireproof buildings, be it

Resolved, That we, the members of the Northwestern Clay Association, assembled here in Minneapolis this sixth day of April, 1910, humbly ask you, the Board of Regents of the State University of Minnesota, and the State Superintendent of Instruction, and also ask the co-operation of the different superintendents and principals of the various high schools of this state, that a proportion of the general appropriation for manual training be devoted to teaching the art of laying brick, tile and masonry, to assist us in this noble work of training young men and scholars the art of laying brick and tile into walls and buildings, also to instruct the same pupils in the different bonds and architecture in construction of the work.

R. B. HINKLEY,
OTTO J. BOWER,
JOSEPH WILD.

Committee of Resolutions.

WASHINGTON BRICKMAKERS TO HOLD CONVENTION IN SEATTLE.

At a meeting of the Brickmakers' Association of Seattle, held recently to consider ways and means to promote the best interests of the brick manufacturers in the state of Washington, it was found to be the opinion of those present that the brick and clay men of the entire state should meet in convention; to interchange ideas; gain knowledge from one another's experience; consider the best means of encountering competition—often most unfair—from producers of other building materials; to make mutual acquaintance, and take whatever steps the wisdom of the convention may find advisable to promote the brick and clayworking industry. It was determined that such convention be held in the city of Seattle on Friday and Saturday, May 6 and 7, 1910, at a place and hour to be later on determined, and an invitation has been extended to every brick and clay manufacturer in the state of Washington to be present. The committee having in charge the arrangements for the meeting consists of D. I. Power, T. W. Dinham and W. T. Houlihan, and the headquarters of the committee is in the office of Secretary Houlihan, 527 Pioneer Building, Seattle, Wash.

AMERICAN CLAY COMPANY MAKING IMPROVEMENTS.

J. A. Daly, general manager of the American Clay Company, Terre Haute, Ind., looked in on us recently and reported that they are spending \$50,000 in improvements at the plant. They are building a new 16-chamber gas-fired continuous kiln and a waste heat dryer. Mr. Daly says business has never been better and the prospects are that the demand for the hollow block which they manufacture exclusively will increase the coming season.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



ORK HAS at last begun on the big improvements to be made by the railroads in their Kansas City terminals, and it is promised that a large force of men will soon be clearing the site for the new depot itself. The work is of such large proportions that it will take about three years to complete it, the viaducts over the present belt line and under it will all be widened, so six

tracks can be operated instead of two, and there is a great deal of other work outside of the building of the depot itself. This work is likely to have a considerable effect upon the brick business in the city this year, in spite of the fact that no brick will be used by the companies on the work at this time.

Contractors are reporting plenty of work on hands, and a great deal of it in sight and think that an unprecedented era of building activity is at hand here if they can but find the workmen with which to take care of the jobs as fast as they are offered. There have been some demands for increase of pay by organized labor, but nothing in the way of a strike has developed to the present time; some demands are reported to have been complied with, and there is a disposition on the part of contractors to stand all they can rather than have trouble just at the time when they should be able to make the most out of their work.

The high price of both labor and material, however, is likely to cut a considerable figure in another way. It is piling up the cost of building to the point where it is hard to see a profit in buildings, apartment houses, for instance, as an investment. The builders like to construct apartment houses, and there has been a world of this class of building in the past, but once the prices are raised to a point which does not show the investor a good investment, this class of business will stop for the contractor until prices have gone down to the point where profitable building can be continued in this direction.

As far as brick is concerned, there is nothing to indicate that there will be any further advance in prices, and the prices have remained steady this spring to the present time. In other lines the advances have been quite marked, the latest raise reported being on cement at the rate of 10 cents a barrel, making it \$1.20 f. o. b. cars here.

The fact that it is now a sure thing that the Missouri River is to be navigated in a large way is also a factor in the building of the future, for it will insure this city against the unfair freight rates which have handicapped it in many instances in the past, giving a water rate here and putting the city at least on an equal with more eastern points as a location for factories and jobbing houses of large proportions; giving the manufacturer the advantage of cheap transportation for raw material and putting him closest to a wide area of territory to the west in which to market his products.

At the last election of the Kansas City Hydraulic Pressed Brick Co., C. W. Reed, who has been acting manager, was elected manager, and A. C. Baird, formerly city salesman, was elected assistant secretary and treasurer. This company is well prepared to take care of its business this season, having 125 teams of its own and also 37 outside teams under regular contract for delivery purposes and the entire outfit is busy all the time. They report sales ample to keep the entire equipment in motion.

The Pittsburg Brick Co. reports that its plant is now nearing completion and a week or so more will put them in shape to begin brick making with an increased capacity over the old plant. They have been very busy since the fire on last Christmas, and the progress made has been a surprise to some, although a disappointment to the officials, who hoped to begin

operating again by April 1. The demand for their pavers keeps up strong and many contractors are after them, so the starting of the plant will be a relief to all concerned.

There is a coal miners' strike on in this section of the country which may eventually cut some figure with the production of brick, at the same time the local plants report that their needs are sure to be supplied for a month or so and they hope that the strike will be over by that time. Some are looking up the price of oil with a view to changing to that fuel in case of need. It is stated that the Kansas Natural Gas Co., which is supplying a number of the Kansas plants with gas, is in a better position to supply gas this spring than for some time, a plentiful supply coming from Oklahoma through their mains, so the lack of coal will not shut off brick making to any great extent, even if the strike is prolonged.

Mr. Eadie, of the Eadie Building Supply Co., reports that his company beat all records in the month of March, the deliveries in country and city being nearly 3,000,000 brick.

Robert Nesch, president of the Pittsburg Brick Co., is now building a residence for himself in this city at a cost of about \$20,000, and is going to show what can be done with brick, his being the first house to be erected here which uses brick in a tapestry effect. Five colors of brick will be used in the outside walls.

K. A. W.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



THROUGHOUT the entire state every indication seems to point towards one of the most successful seasons in the history of the brick industry in Wisconsin. Buildings of all types and all sizes are to be built in every direction and to meet, what it seems, will be an extraordinary demand, the manufacturers have all commenced operations and are running their plants full capacity. During the past several months numerous improvements have been added to the many factories which are scattered over the state and new concerns are constantly entering the field.

In the larger cities, especially Milwaukee, many manufacturing buildings are being erected, and the architects are working on plans for numerous others which will be ready for figures within a short time.

"We are busy, everybody is busy, and business is getting better every day," said J. B. Whitnall, president of the Pennsylvania Coal and Supply Company, recently. "The greater share of the buildings being put up are for manufacturing purposes, and they are generally of reinforced concrete construction. The demand for colonial brick and the cheaper grades of pressed brick, for veneering, is heavy. The demand for other grades, however, is increasing as the season advances and there seems very little doubt but what the season will be a very successful one," he continued.

When asked if he thought that the supply would not equal the demand, Mr. Whitnall replied that he could see no reason for such an occurrence, as the factories had all been started up at an early date and they should be able to keep up to the demand for their product.

Brick will be used by the city of Manitowoc in the pavement to be built on Jay street from Eighth street to the lake front. This street is one of the most heavily traveled in the city, but has been in bad condition for some time. At a recent fire much damage resulted, owing to the delay that was caused when the department attempted to run down this street. To prevent a repetition of such an event and for convenience sake as well, it has been decided to have the work done at once.

Two new pulverizing machines are being added to the equipment of the Ringle brick factory at Ringle, and various other improvements have been made. Operations were com-

menced April 1, and it is estimated that the output for the entire year will be as high as 3,500,000 brick.

The Columbia Silica Company, of Portage, after installing new conveyors and adding a new 150-horse power steam boiler to its plant, has commenced the manufacture of brick, together with the various other products turned out by the concern.

Ricketson & Schwarz, of Milwaukee, have been awarded the contract for furnishing the brick to be used in the erection of the new dormitory at the State Normal School at Superior. It has been decided to use a tapestry design for the facing and brick of various colors will be used in carrying out the scheme. It is said that this will be the first building in Wisconsin in which this plan has been used.

The city of Sheboygan is planning to pave a large number of streets during the coming summer, five of which are to be paved with vitrified brick with stone curbing.

According to the reports made by experts recently engaged by Superior brick manufacturers to investigate the blue clay beds in Douglas county along the shore of Lake Superior and between Wisconsin point and the Amnicon River, a distance of about five miles, the clay is admirable for the manufacture of pottery, tiling, sewer pipe, roofing and all kinds of brick. The investigation carried on by these men extended over a considerable period of time and their decision is considered as invaluable to the owners of the property upon which the beds are located.

The Hydraulic Stone and Brick Company, West Bend, in which M. H. Evans, of St. Paul, and C. H. Morton, of West Bend, Wis., were heavily interested, has been sold to John Lange and a company of contractors, of Fond du Lac. William Capelle has been retained as foreman by the new owners and the plant is now in full operation.

The Badger Building Supply Company, of Milwaukee, has filed articles of incorporation with the Secretary of State. The capital stock of the new concern amounts to \$25,000, and the incorporators are: George A. West, Louis Manegold and Joseph O'Laughlin.

L. J. Prucha, of La Crosse, recently purchased the brick yard and farm formerly operated by John Boma, deceased, in the town of Shelby. The sale was held under foreclosure proceedings and was purchased for \$4,729. Eighty acres of land, the brick yard and all of the buildings were included in the deal. John Boma, who conducted the brick yard for a number of years, was killed in a hunting accident two years ago.

A petition was presented to the City Council of Racine at their recent meeting by the residents of Park avenue, asking that a brick pavement be built on that street in preference to asphalt. A short time before a petition asking for an asphalt pavement was presented and, as there is still much dissatisfaction among the residents, it would not seem strange if the council decided to lay the matter over until next year.

A. BADGER.

RUST CLAY FEEDERS GROWING IN POPULARITY.

The Marion Machine Foundry and Supply Company, Marion, Ind., is enjoying a season of unusual prosperity. Among recent purchasers of the Rust clay feeder are the following firms: H. Weil & Bro., Goldsboro, North Carolina; Littleton Brick Works, Littleton, S. C.; United States Brick Works, Tell City, Ind.; Weiser Brick Yards, Weiser, Idaho; Hydraulic Pressed Brick Company, St. Louis, Mo.; Sherro Bros. Drain Tile Works, Marion, Ind.; W. D. and C. H. Lesueur, Nashville, Tenn.; Mrs. E. E. Cuppy, Chalmers, Ind.; La Rue Tile Company, La Rue, Ohio; J. D. Rumsey, Stryker, Ohio; Richolt Brothers, Holgate, Ohio; Dry Pressed Brick Company, Sandpoint, Idaho; Shakelford Brick Company, Des Moines, Iowa; Gunther Bros. Brick and Tile Company, Port Washington, Wis. H. L. Erlewine, the secretary of the company, writes that they are shipping on an average of three clay feeders a day, and all of the machines they have sold are giving the best of satisfaction.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A Useful Combination.

Editor THE CLAY-WORKER:

I am in receipt of your vest-pocket kit, for which I thank you. It is a most unique and very useful combination of handy tools.

Wishing you and THE CLAY-WORKER success, I am,

Yours very truly,

BLACKMER & POST PIPE COMPANY,

Per J. W. WESTON, Second Vice-Pres.

St. Louis, Mo., Apr. 6, 1910.

The Bacon Problem.

Editor THE CLAY-WORKER:

We notice in the March number of your magazine, on page 429, what you say about the high price of bacon, and that in the "course of time" the values will readjust themselves.

We recall in 1681, or was it 1521; it might have been 1861; we are a little mixed up on the dates, that the price was quite high, but it finally came down. The only question with us is, have we that much time, or had we better do without the bacon?

Complimenting you on your valuable paper, we are,

Yours truly,

Menomonie, Wis.

HYDRAULIC-PRESS BRICK CO.

A Cure for Lamination.

Editor THE CLAY-WORKER:

After reading a discussion in February THE CLAY-WORKER on some observations on the clay column of a stiff mud machine by Paul E. Duemmler of Charleston, W. Va., I will have to take issue with him. I have had this same trouble with lamination that he speaks of. In the first place, if the laminations are circular in form, and they surely are, they could not have been formed by the die; if caused by the die they would necessarily be of a square form, but they must be caused by the auger on account of the circular form of lamination. There are laminations caused by the die, but they are of a different nature. They always occur at the corners of the clay column and are always pulled back. There is no question but that the clay column runs a little faster in the center of column on account of friction in going through the die, but this would not cause that circular lamination that so many brickmakers are troubled with. Now, I will try to tell you where the trouble occurs. The laminations are caused by the auger being choked; the clay will begin to stick fast to auger nearest shaft and will gradually close the spiral of auger until there is just a small stream of clay coming through, sometimes not much larger than a man's wrist; it is this worm-like column which never gets a chance to properly unite in a solid mass after leaving the auger that causes all the trouble. If the auger runs clean and leaves no deposit of clay upon it, you will find no lamination.

To prove that my theory is correct you try this project: After you run your machine until the laminations show up you stop the machine and clean out the clay in the auger or expressing screw. Now, I do not mean to clean out all the clay that is in the machine, but just that part that forces

the clay through the die; then wet the auger thoroughly with water, close the machine and start again and you will find no laminations until your auger begins to choke again. It will show gradually at the start, but will get worse as the auger chokes up. That has been my experience with laminations. We are working a very sandy clay, very hard to get through a machine with a castiron auger. Now, of course, everybody toots his own horn, as nobody will toot it for him. I have patented a steel-faced auger that will cure any kind of circular lamination. I do not care what kind of clay you use it never chokes, but always runs clean just like a steel plow does. To be sure, some clays run much more smoothly than others, as for instance, the glacial drift clays found around the Great Lakes. They are of a very plastic, slippery nature and slide over castiron without adhering to it and consequently no laminations are found in such clays, while others of a more sandy and slicky nature adhere to the castiron and retard the flow of clay, choking up the spiral and causing the laminations. You can readily understand that the use of steel instead of castiron would overcome this trouble just as the steel has overcome the troubles of the castiron plow.

Yours,

NEITZEL.

How to Burn Brick Hard.

Editor THE CLAY-WORKER:

The clayworking books I ordered arrived in good order; I am well pleased with them. There is certainly a lot of good information in these books and they are worth their cost many times over.

We are manufacturing a bright red brick here, but they are a little on the soft order, and if we burn them hard, the color goes. Is there any plan known whereby we can mix any substance with our clay that will make them hard and give them the metallic ring that the majority of good bricks have? We have been told that in Hamilton, Ont., where they make all red bricks, salt is mixed with the clay to make the bricks harder. Could you give us some advice on the matter?

Thanking you.

Yours truly,

A. E. HILDER,

Secretary Sidney Brick and Tile Company.

Sidney, Man., April 13, 1910.

A Plea for the Ceramic Graduate.

Editor THE CLAY-WORKER:

A fable with a declared moral was told in the last issue of THE CLAY-WORKER, "By the Light of the Kiln Fire," page 446. Every word of that story bore on truth. In fact, so true was the apparent application of the moral that I fear it will hinder, if not harm, the most excellent work that is being done by our ceramic schools.

The writer is a "graduate of one of these schools. He knows the character of work done by them, how it prepares the graduates for work in ceramic industries, and of how the instructors view the fitness of the graduates to assume responsible positions.

"Give the Boy a Chance" is the most excellent keynote of an advertisement of one of these schools. I wish the writer of "By the Light of the Kiln Fire" would take that as the theme of his next cogitation.

Our ceramic schools do not teach much chemistry. They teach just enough chemistry to give the students a fundamental understanding of the chemical relations and properties of matter. Their ceramic education is not chemistry, but the application of chemistry.

I wonder if the one who writes "By the Light of the Kiln Fire" has not noted that the strongest declarations that have been made against the inflated value that is placed on chemical analysis of clays by geologists and clayworkers have been made by Professors Orton and Purdy. I wonder if that

writer does not know that Professor Bleininger at Pittsburg lays more emphasis upon the practical tests than on chemical analysis. I have no reason for believing that he does not know these facts, for his moral is directed against employment of a chemist as superintendent of a brick yard and not against ceramic graduates.

Ceramic graduates are not chemists. Our ceramic schools teach the principles and practice of ceramic engineering and not chemistry. All of the laboratory and lecture work of our ceramic schools are as much practical ceramics as it is possible to make them.

Why do some of the graduates of these schools fail when given responsibility in a ceramic factory? Why do some of these graduates have to seek employment in other lines? Those questions are conundrums somewhat like "Why is Ann." The best answers would be conundrums of the same sort, to-wit: "Why do some doctors, lawyers, preachers, etc., fail?" Education can not make success for a man.

Let me ask if too much is not expected of the graduates of our ceramic schools? I think so. We were told by our instructors not to assume responsibilities until we had become acclimated in the industrial world and life. In the schools, the students are led by and are dependent upon sympathetic instructors. In the factory they are cast upon their own responsibilities and are met with severely critical, if not antagonistic attitude and judgment of employer and superintendent. The graduate, as a rule, does not know how to handle men and machines. They must learn this. They should be considered as any new employe who has not had experience in factory procedures. The only difference between the ceramic graduate and a young man who may be picked up off of the streets is that the ceramic graduate has a trained mind which will make his progress in ceramic manufacture much more rapid and sure, if he has ability to use his trained mind.

Want of ability to use his trained mind is the cause of failure of students in all lines of human activity.

"Give the Boy a Chance." He is not a chemist nor a theorist. Neither is he an experienced foreman. He has had valuable training and is willing to let you profit by his ability. Break him in slowly. Do not try to force him nor let him take the full distance right in the beginning.

A CERAMIC GRADUATE.

THE COST OF BUILDING KILNS.

Reply to a Plea for Up-Draft Kilns.

Editor THE CLAY-WORKER:

Oh, my! what a dust I am raising, said the fly on a circus chariot wheel during a race around the arena.

The plea for up-draft kilns from Mr. Elias Petts in the March THE CLAY-WORKER reminds me also of raising dust, his plea being the fly and my paper on down-draft kilns, read in the National convention, being the wheel.

I am glad that Mr. Petts has taken up the matter and there shall be no bad feeling about it. He says that if I can build down-draft kilns as cheap as up-draft, I ought to get over the country as fast as possible and show my plans to every brickmaker.

I think it will be more business-like to construct a few such cheap kilns to demonstrate that I am able to sustain the claim I have set up. Then I can invite Mr. Petts and others to come and see the results.

I have had sad experience in showing. It seems that when one is in possession of real knowledge and experience, some brickmakers, if they can avail themselves of any substantial data which they can use to overcome in part their troubles, will not want anything beyond the point at which they can get it for nothing, the other fellow, the giver, getting little but thanks and oftentimes apparently not even that.

The proposition is not an easy one, but its successful so-

lution is assured. I feel that we must have kilns that are better than the up-draft kilns, but kilns that every brickmaker can afford to build. I repeat that my down-draft kilns can be built practically as cheap as up-draft kilns. For instance, two kilns, each of one hundred thousand capacity, with one stack for two kilns, can be built for \$2,000. This includes the price for the kiln right. Working plans, specifications, instructions how to set, burn and coal. It depends on the price of material and labor in different parts of the country whether it would cost a little more or less.

Brother Petts, will you or some other interested party, please state what a Philadelphia up-draft kiln of two hundred thousand capacity will cost, figuring common brick at cost of production, about \$4.00 per thousand, and fire brick at \$25.00 per thousand? Figure also the cost of putting on and removing platting and the loss in a season's run; also figure the increased cost of fuel and labor in your up-draft kiln. You say you have no interest in any kiln whatever, then you go on record as saying that you have been intimately acquainted with a continuous kiln man and claim that the continuous kiln is the cheapest in the end, but the cost is almost prohibitive with many brickmakers.

I will not say anything now against continuous kilns except that they are not within reach of the average brickmaker. When defending down-draft kilns I have in mind such kilns as will deliver the goods and that can be built cheap by the small as well as the large brickmakers. We must have something better than up-draft kilns in order that we may produce more hard brick to overcome the ruinous competition of cement brick and block. It is time to do something.

The cement people often point with glee to the many soft, inferior brick sold by many brickmakers, brick that are nothing but baked (not burned) clay, crumbling and disintegrating in the walls and just such brick are the product of up-draft kilns. If we want to boost brick as the best building material, we must have better kilns which will burn brick all hard. I don't care whether you build my kiln or other kilns, just build better kilns and burn more hard brick.

The hardest brick are paving brick. How many paving bricks are burned in up-draft kilns? O! for the sake of durability, why shouldn't building brick be burned all hard? Can you do it in up-draft kilns? With good, well burned brick we have the best building material and we don't have to fear competition from cement brick, but we must have better kilns to burn our brick, so the other side can not find any fault. Then we can talk "brick" and not be ashamed of it.

Yours for better kilns and better brick,

ANTON VOGT.

Roofing Tile.

Editor THE CLAY-WORKER:

A good many inquiries have come to our office, 82 Illinois street, Chicago Heights, Ill., from large and small clay manufacturers, asking if it is possible to add the manufacture of roofing tile on a small scale to the manufacture of brick and drain tile. If you will allow us a small space in the next issue, we will try to give below a general answer to these inquiries and invite any manufacturers of clay ware to correspond with us in regard to the details, which will differ somewhat in different factories, to make the investment as profitable as possible.

The manufacture of roofing tile in this country is only in its very early stage when compared with the manufacture of this kind of roofing material in Europe. There hundreds of factories produce millions of roofing tiles per day; it is as common an article as common brick is here.

Is it not essential for the clayworkers of this country, who are often compelled to shut down through lack of trade, to study the question of adding a well paying article to their manufacturing and to bring life and profits to a dead capital? The business man knows that a factory that produces only

half of what it can produce is not a profitable investment.

Roofing tile have been made and used in this country long enough to show that their use is not a fad, but a necessity and are here to stay, and they will be used more and more every year. There are facts to prove this. Twenty years ago the production was limited to about fifty squares per day, while at the present time fifteen hundred squares are made and used every day, a very respectable figure, but not half enough to supply the demand. The increase is sound for it took that many years to educate the people in the use of tile for their roofs, but the natural advantages that roofing tile has over every other roofing material are so great and decisive that the demand will increase with the supply. It is only a matter of lack of manufacturing facilities that tends to keep the roofing tile industry in its infancy.

The competition of all the temporary roofing materials now on the market can not stand against the better class of roof covering that every clay manufacturer can turn out, if he puts his mind to it and goes after it.

A clay roofing tile, if properly made, is indestructible and fireproof and gives a very attractive and artistic finish to any building that it covers. The idea that frame buildings are not strong enough to hold up under the weight of tile is wrong, for their weight is not more than slate, about seven or eight hundred pounds per square. The hundreds of frame buildings in this country covered with tile prove this statement. For the small brick and drain tile manufacturer it is a very desirable addition to their plants. This addition can be made for very little expense. Nearly all have an auger machine from

which to run the "clots" to make the tile. For a start, a small press, some dies and a few pallets is what is needed. Drying can be done on the brick cars in the dryer. The burning is done in the kilns at the same time that brick or other ware is burned.

The manufacturer's price per square f. o. b. cars is from three to four dollars per square, while the selling price is about ten dollars. The fancy or glazed tile command a much higher price.

The same story holds for roofing tile as for brick. Every year more and more brick factories are erected and more brick are used against the competition of wood, iron or cement. The natural inquiry as to the cause of this increase is answered by the fact that instinctively a man, building a home, turns to a clay product because it is indestructible, fireproof, has a better appearance and makes the yearly expense of insurance and maintenance almost nothing.

At the present time the manufacture of roofing tile is in the hands of a few concerns, and there is nothing to prevent the clay manufacturers from starting this business and making a very profitable addition to their plants.

The best clay or shale for the manufacture of roofing tile are those that are somewhat plastic and any kind of fuel will suitably burn them. The form of tile has nothing to do with the burning; it is clay that is burned and that is done with the fuel that is the most economical for the manufacturer.

The necessary machinery is all made in this country. The most common sense and best patterns are to be had without patent rights or royalty.

CHAS. STOLP.

CHICAGO IS GREATEST BRICK CENTER IN AMERICA.

IT HAS BEEN stated at the University of the State of Illinois that the clays of the domain within its borders, if they were properly developed, could be made to produce an annual income of more than \$70,000,000, while under present conditions they yield but \$14,000,000. The development of the ceramic arts will bring this about. The United States produces annually \$60,000,000 worth of brick of the quality known as common, which go largely into the walls of buildings and into the making of sewers. More than 10 per cent of this production comes from Illinois and by far the greatest portion from Chicago, which is the greatest market for common brick in the world and brick are made at \$1 less per 1,000 and sold to the consumer that much cheaper than in any other locality. This means that Chicago brick are put free on board of cars at \$1 less than any other market in the country.

The enterprise of the brickmakers of Chicago, who have introduced the most modern and improved methods for making brick, has brought about the low cost, because the cost of making has been lessened and the consumer gets the benefit. The entire clay products of the nation aggregate \$158,942,396, of which the common brick industry brings over \$60,000,000, or more than two-thirds of the entire clay production of the country.

Chicago, within its borders, has the most modern and complete brick plants in the world, and in these more than \$5,000,000 of capital is invested. There are thirty-six brick plants in Chicago, and each of these produce daily about 250,000 brick. Chicago brick sell for \$6 per 1,000, which is from 50 cents to \$2 cheaper than they may be bought in other large cities on the continent.

During the past year the Chicago brickmakers have invested \$1,000,000 in improvements, so that production may be increased and the cost of production lessened. It is in the loading and handling in the kilns and of piling the bricks that the makers have made vast improvements, which will also tend to improve the quality of the Chicago-made brick.

Taking the aggregate figures of production as herewith

given it shows that the clay industry of the United States is only second in importance to that of coal and iron. When the cost of brick is taken into consideration and the amount of manipulation and handling which they require it seems almost a wonder that they can be made as cheaply as they are. There is no straw used in the modern-made brick. It is entirely of hard-baked clay and it is the surest kind of strictly fireproof material. There are many thousands of men employed in the industry in Chicago and the weekly pay roll will aggregate many thousands of dollars.

It is only within the past ten years that the brick industry has been brought to its present state of perfection. Time was when the machine-made brick had to be baked with wood in the kilns or the sun's rays were used. Now the heat is produced through crude oil, coal or gas and brick are handled to and from the kilns by machinery, where formerly only hands could be used. The piling in the kilns is done by new and wonderful machinery, which makes a much more uniform article of production at a saving in cost and less imperfect brick. The brick plants today are marvels of modern machinery and worthy a visit of any who would learn the magnitude of the industry in Chicago. This city ships her building brick to thirteen surrounding states and it is to supply this and the increased local demand that \$1,000,000 is being spent on improvements to the Chicago plants.

Without careful consideration there is no appreciation of how enormous a quantity of brick is made in Chicago brick factories each year. Last year there were made and delivered in Chicago enough brick to supply a round dozen bricks to every man, woman and child in the United States.

If last year's output of Chicago brick factories were laid in a walk they would make a twenty-inch pathway around the world and in half a dozen years Chicago brick factories produce enough brick to build an automobile drive around the globe.

Were one person to take the contract to count all the bricks made in the Chicago brick plants last year, it would

take seventy-six years of constant counting to complete the job.

If the output of the Chicago brick plants for last year had to be shipped to St. Louis it would require 67,000 freight cars to haul them, making 3,500 trains, 3,500 engines, 3,500 cabooses, 376 miles of loaded cars and over 15,000 men to handle the trains.

If placed end to end the annual output of the Chicago brick yards would reach half way to the moon.

If placed in a balance the weight of the brick made in Chicago in a single year would equal that of 34,000,000 men, one-third the population of the United States.

A single year's output of the Chicago brick factories would lay a fifty-foot automobile speedway from Chicago to New York and would leave enough brick over to build mile posts and an occasional road house.—Chicago Examiner.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

THE

SITUATION in New Jersey remains substantially the same as previously reported. With the opening of the season, trade has revived and is now active. Raritan are now molding and there is some work going on at Sayreville. Other places have not reported, though it is understood that operations will shortly begin if they have not begun already.

For Raritan rivers full prices are obtained under active demand. A considerable proportion of the market for manufacturers here is not clouded by labor troubles or the possibility of troubles. The effect is to keep business in better condition, with trade still moving. Prices for brick are reckoned at \$5.75 to \$6.25 per 1,000. White enamel are quoted at \$60.00 per 1,000 for American sizes and \$80.00 per 1,000 for English sizes. These prices are f. o. b. the works in New York or the Eastern states. Movement is reasonably brisk at these figures.

The National Fire Proofing Company voluntarily raised the wages of its employes to take effect the first of this month. Since the close of the panic, which affected such firms as this more quickly and more seriously than almost any other variety of business, it has been doing a steadily increasing business, and today it reckons itself in good position to advance the pay of its men. The National has intended to use its men with due consideration for their welfare, and now that prosperity is once more shining upon the country it has advanced the pay of all its employes 10 per cent without solicitation on their part. The National, in doing this, has established a precedent which will cause it to rank high among the employers of large numbers of men.

About two hundred men employed in the pressing department of the Pardee Tile Works, Perth Amboy, struck early in the month for higher wages. They were getting 13½ and 14 cents an hour and they struck for a uniform scale of 15 cents. The strike has been peaceable so far. When their demands were refused, the men walked home quietly. They simply ceased work. About one hundred girls in the finishing department were obliged to go home because, with no pressers at work, there was nothing for them to finish.

A number of miners employed by the Didler-March Company, of Keasebey, threatened strike. They wanted an increase in pay, but when it was shown that they were getting as much as others employed at similar work they withdrew their demands and remained at work.

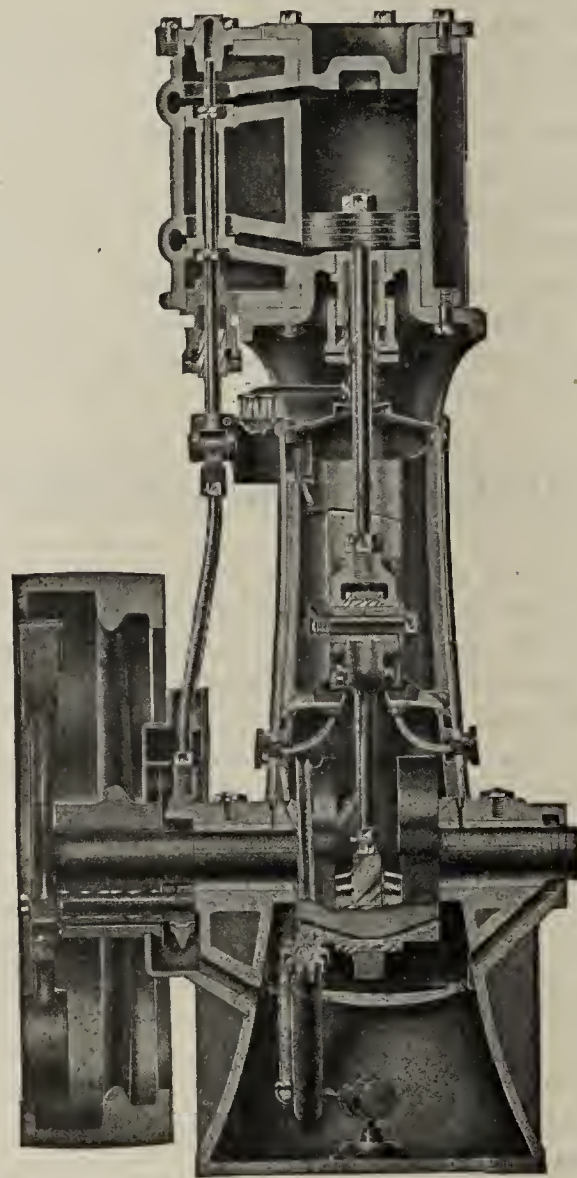
A conference has been held in Trenton during the month, at which the re-classification of pottery transportation schedules has been under consideration. The potters represented that the schedules were unequal and unfair and they insisted upon a re-classification which would be uniform and fair. This subject has been a bone of contention for a long time,

and hearings have been held at different times to determine what should be done in this respect, so far without important result.

Five counties in New Jersey will expend something like \$3,000,000 for new school buildings during the present year. Most of these structures are to be of brick and iron, but there are too many which have more or less concrete included in the specifications. Some are a combination of both brick and cement, with reinforcement of steel. A. L. B.

THE "A. B. C." STEAM ENGINE FOR AUXILIARY POWER PLANT EQUIPMENT.

A good policy adopted by the American Blower Company a long time ago has now grown to be a custom with them—that of following up periodically every Vertical Enclosed Self-Oiling Steam Engine of their manufacture shipped from their plant. The replies received from their many inquiries



Vertical Section Illustrating Oiling System "A. B. C." Engine.

give them an opportunity for suggestions for betterment in operation, savings in fuel and oil, and the elimination of bothersome repairs. The "A. B. C." Vertical Enclosed Self-Oiling Engine is a unique machine in many respects. In these engines are combined graceful lines, a novel oiling system, high-class materials, properly proportioned and finely finished.

There is a wide field of usefulness for small, high-speed engines, but there are few which will fill it with any degree of satisfaction to the purchaser, owing to the necessity for almost constant attention, frequent adjustment and numerous repairs.

Since the introduction of the forced draft system of burning brick, requiring a blower or fan for perfecting combustion, also the extensive application of centrifugal exhaust fans for the drawing of waste heat from the cooling kilns and utilizing this waste heat for drying, the need of a strong, serv-

iceable, water-proof and fool-proof engine for driving these fans and blowers has been clearly demonstrated.

The initial purpose in developing the remarkable engine herein described was to provide a better engine for driving fans and blowers than had ever before been used.

Since its development it has been adopted by the largest manufacturers of electrical machinery in the world for the driving of generators for isolated electric lighting plants, in factories, manufacturing plants, mills, lumber and brick yards. These engines, being fully enclosed, can be placed out of doors as well as under cover and will give entire satisfaction wherever a steam pipe can be carried.

As the dependability of an engine depends to a large extent upon its perfect lubrication, it is this special feature which will interest the readers. At the base is located a small pump which, even at the slowest speed, delivers to each moving part a copious stream of clean oil. The oil flows by gravity to the running parts and in returning to the base of the engine is filtered and cooled before being repumped. No oil is wasted and this system insures a saving of four-fifths of the usual cost of lubrication. Engines of this type will run for months without the addition of fresh oil or the making of adjustments. Manufacturers claim that an engine of this class costs so much less to operate than the ordinary engine that it will save its original cost in one year.

In plants using steam boilers and which have use for exhaust steam for heating or drying, electricity can be generated by the direct connection of the "A. B. C." Vertical Self-Oiling Steam Engine direct connected to any good generator at a saving of 25 per cent over the buying of electric current.

BE SURE YOUR SPECIFICATIONS ARE RIGHT.

Men in the building trades have come to recognize the importance of specifying brands in making out their lists of supplies. Then they can be absolutely sure of the quality of the goods delivered and can protect the reputation of the finished work. A specification like "Ricketson's Red Brick Brand Mortar Colors," for instance, is absolute assurance that the tinting of the brick, mortar, cement or stone, will be rich and bright and that it will never fade, crack or prove otherwise disappointing so long as the material with which it is incorporated remains intact. There is also the point of the added confidence of the customer when he notes that materials of such undoubted reputation are being used on his work.

BUSY DAYS FOR THIS KILN BUILDER.

Mr. F. W. Dennis, of Norfolk, Va., an inventor and builder of double chamber, single chamber and round down-draft kilns, and also up-draft kilns with arch over top, hot air and direct heat brick dryers, who is one of the oldest kiln builders in the country, starting for himself in 1887, is exceedingly busy these days and reports fine prospects for the coming season. In the immediate future he is to build a new kiln for the Fulton Brick Works at Richmond, Va., where he already has two installed, one at Suffolk and also one for the Nansemond River Brick and Tile Company, at Norfolk. The Norfolk plant has at the present time two of the Dennis large size double kilns. Mr. W. H. Collings is president of the Nansemond River Brick and Tile Company and Mr. W. J. Parrish is the president of the Fulton Brick Company. These two are the largest plants in Virginia. Mr. Dennis informs us that Mr. Harwood, of the Sunset Brick and Tile Company, Gonzales, Texas, is so well satisfied with the two Dennis kilns he is now using that he is at work on the building of the third one. In fact, it seems wherever a Dennis kiln is installed it proves so satisfactory that others are soon erected. Mr. Dennis has made some improvements in his kilns during the past two years and now claims that they meet all requirements for the burning of clay products.

Written for THE CLAY-WORKER.

BUILDING NEWS OF THE TWIN CITIES AND THE NORTHWEST.



THE NORTHWEST looks forward to one of the biggest and best years which has ever been its good fortune to enjoy, in construction and building lines. And what is more to the point, the volume of brick construction is showing a steady and constant increase. The craze which has led unwise owners into the concrete fad still rages to some extent, but there is a distinct change from it, and while there are a number of structures which call for that form of construction, it is noteworthy that the genuine forms of fireproof construction, clay protection, are steadily increasing. And were it not for the domination of labor in brick work, there would be a much better and bigger sale of brick. There is no question but what the arbitrary demands of brickmasons as to wages and hours, and other conditions which they seek to impose, have led contractors to divert their work away from brick as far as possible. In the Twin Cities, brick and stone masons have demanded and have secured an advance of 5 cents an hour on their wages, making brickmasons 65 cents and stonemasons 55 cents per hour. And this simply results in contractors suggesting to architects and owners that they will save money and trouble if they will limit the use of brick in their structures to the lowest possible amount. So, reinforced concrete is used by many who do not wholly approve of it, but because common labor can be used so freely. Brick curtain walls are laid to give an exterior appearance of attractiveness which is not possible with the homely concrete, but the amount of brick is held down on this account. Structural iron workers have announced that the handling of reinforcement in concrete must hereafter be done by their union. Inasmuch as common labor is used to move it around and to the place where it is to be used, the demand merely means that the common labor would have to be employed as well as the structural workers. While this is not a concern of brick people, it shows the tendency to try to run things, which causes trouble for all concerned. The contractors refuse to consider this demand and will proceed with common laborers—all except those unfortunates who have to comply with union regulations because of their accepting the union rulings. All these things have a bearing upon the clay industry since they show what has to be combatted if the industry is to have its proper treatment at the hands of the building public.

The Minneapolis Builders' Exchange has had a formal opening of a new cafe in connection with its quarters. The cafe is now run under the auspices of the exchange, but is somewhat allied with it. Brick manufacturers, contractors and others find it a convenient place to meet for luncheon and conferences.

The Johnson, Jackson & Corning Co., of Minneapolis, recently captured the order to furnish 80,000 Sparta salt-glazed face brick for Charles H. Hyde, of Pierre, S. D. The brick are similar to those used for the front of the annex to the Minneapolis Chamber of Commerce building. The same company furnishes the ornamental cream enameled terra cotta for the Hyde building.

L. A. Swanson, a brick and tile manufacturer at Fridley, Minn., a suburb of Minneapolis, died in a Minneapolis hospital at the age of 54 years. He leaves a widow and four children.

The recent conservation congress which was held in St. Paul had an interesting and important session devoted to the development of trade schools and trade school work. It was pointed out that artisans in the different trades are becoming

distressingly scarce and there is no practical way of training more unless something can be done in the trade school.

Henry Vogt, of Minneapolis, will take charge of the new plant of the Black Hills Pressed Brick Company, of Rapid City, S. D., which is to be in operation by May 1.

The city of St. Paul has finally formulated a new building code, after having the matter in committee for a number of months past.

The American Clay Products Manufacturing Company, of Stillwater, Minn., is rushing work on the installation of a plant at Stillwater, Minn., to be in operation by the end of April.

There has been some fear of a brick shortage this spring in the Twin Cities, due to the early demand, which is very heavy, and the fact that the new stock is often not available until around June 1. But spring developed much earlier than usual this season and the brick yards of the Northwest will be starting up a good thirty days ahead of a year ago, which will enable a much earlier delivery of brick than common.

The Boukind-Carlson Brick Company, of Crookston, Minn., has been incorporated to succeed to the business of the Northern Pressed Brick Company and will engage in the manufacture of common and pressed brick. The company has ordered considerable new machinery, which will increase the output of the plant to 50,000.

The Minneapolis Brick Supply Company has engaged in business in Minneapolis, with offices and sample room at 203 Lumber Exchange Building. Ira C. Jones, of the Minneapolis Brick and Tile Company, is general manager of the new company. They will handle a large and full line of face bricks, and will handle common brick from the leading points of the Northwest, including Menomonie, Chaska and Princeton.

Building permits in St. Paul continue to show a gain over a year ago. For March the permits amounted to \$900,811, which was a gain of \$127,813 over March of 1909.

Minneapolis permits for March ran well over a million and a quarter as compared with about a quarter of that figure for last year. The total was reached without any very large permits to cause the total, it being by small and frequent structures. Inspector Houghton expects the total to reach \$16,000,000 for the year.

The Dayton Dry Goods Company, of Minneapolis, will erect a large annex addition to its department store building at Nicollet avenue and Seventh street, covering a ground space of 10,500 square feet, with brick exterior walls. Cost, \$90,000.

The Parlin & Orendorf Plow Company will soon open bids for the erection of a handsome warehouse in Minneapolis at Washington and Seventh avenues North, to cost \$150,000 to \$200,000.

J. L. Robinson, of Minneapolis, received the general contract for a five-story addition, brick and terra cotta construction, to the buildings of the L. S. Donaldson Company at Seventh street, near Nicollet avenue.

J. E. Rogers, of Minneapolis, proposes erecting a theater and office building in St. Paul to correspond with the Unique Theater, which he owns in Minneapolis. The building will be at Ninth and Exchange streets, running from Wabasha to St. Peter streets. A building to cost \$150,000 is proposed.

Kinney & Jogerst, architects, Minneapolis, have prepared plans for a brick high school building for Northfield, Minn., to cost about \$70,000. A four-room addition to a graded school there is also projected, to cost about \$20,000.

Guy A. Thomas, with the Washburn-Crosby Company, of Minneapolis, contemplates the erection of a theater on Seventh street and First avenue North, to cost complete, about \$250,000.

The Golden Rule Department Store, St. Paul, has let the contract for the erection of a large four-story addition to the Robert street side of its store, to cost \$110,000. The work

will be part cut stone, part brick and part plate glass for the exterior walls.

The Pioneer Press Building, Fourth and Robert streets, St. Paul, is to have four additional stories built to the top, to cost about \$200,000. The exterior walls will be of gray pressed brick.

T. WIN.

BRICKMAKERS MUST NOT USE THE WORD TAPESTRY, SAYS THE U. S. COURT.

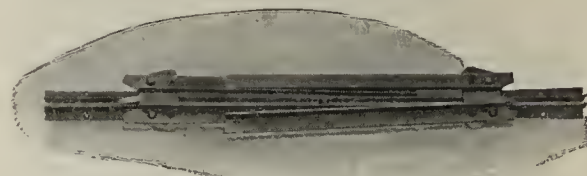
As announced in Fiske & Company's ad, on page 626 of this issue, the United States Court has granted a decision in favor of Fiske & Company as against the Legg Brick Company, of Calhoun, Ga., in a suit for infringement of their trademark "Tapestry" as applied to bricks or other clay products. Fiske & Company are entitled to this protection. They have advertised "Tapestry" brick extensively, and this no less than the excellence of their product justly entitles them to every benefit and advantage to be derived therefrom.

COLLAPSIBLE STEEL HORSE AND TRESTLE.

S. M. Hildreth & Co., of No. 2 Rector street, New York city, are manufacturing a collapsible steel horse and trestle, which the makers claim can be used all over the world, for it is light in weight and will sustain more weight than any other horse or trestle. Being constructed of steel angles, it



Open Ready for Use.



Collapsed or Folded.

is strong and rigid and precludes any chance of breakage, thus lasting forever. They are convenient for handling and transporting and afford great economy of space when not in use, as they can be stored anywhere or checked out from the tool or store room in any shop as any other tool.

These trestles will be made in various sizes for any purpose and can be manufactured to raise or lower to various heights. This is a device which hardly a day passes but some one has use for and being collapsible steel, it is always ready for immediate service.

CHICAGO RETORT AND FIRE BRICK COMPANY.

An error occurred in our Chicago news letter in our March issue, when "Scribe" referred to Mr. Charles S. Reed as "president of the Chicago Fire Brick Company." Mr. Reed is president of the Chicago Retort and Fire Brick Company and has been for many years. The latter company manufactures a high grade fire brick, keeping the immense factories at Chicago, Brickton and Ottawa, Ill., busy turning out retorts and fire brick. As will be seen by their ad, on page 630 of this issue, they make a specialty of the "Ajax" fire brick, which is particularly adapted to the building of kilns. Mr. Reed will be pleased to welcome visiting clayworkers at the new offices of the company, 837-839 Commercial National Bank Building.

THE LARGEST SEWER PIPE PLANT IN THE WORLD TO BE EQUIPPED WITH STEVENSON MACHINERY.

The Stevenson Company, Wellsville, Ohio, feel much elated over an order for Stevenson machinery for what is considered the largest sewer pipe plant in the world at Midvale, Ohio, being erected by the H. A. Robinson Clay Products Company, of Akron, Ohio. The order calls for an equipment for a five-press shop, including four No. 5 rock crushers, ten improved dry pans, ten improved wet pans, three 40x52 sewer pipe presses and two 44x60 sewer pipe presses.

CLAYS FOR USE IN SOLUTION OF DRYING PROBLEMS.

Prof. Ross C. Purdy, director of the Department of Ceramics at the Ohio State University, Columbus, Ohio, writes that he will be glad to have members of the N. B. M. A., who promised at the Pittsburg convention to send in clays for the Committee on Technical Investigation to use in working out investigations on the drying problems, to redeem their promises at once. Prof. Purdy does not desire to test clays for any definite purpose, but wants a number of different clays for the sake of comparison in their drying study. Shippers are requested to send at least a ton of clay, and where they can do so conveniently, to have it ground before shipping.

THE POTTERS' CRAFT.

Prof. Charles F. Binns, director of the New York State School of Ceramics, at Alfred, N. Y., a man well known through his technical and practical work along ceramic lines, and one who has made many excellent contributions to THE CLAY-WORKER's list of ceramic literature, has but just recently written an interesting and valuable book on the subject, "The Potters' Craft."

The prime purpose of the book is that it shall be used as a practical guide for the studio and workshop and, as stated in the preface, is the outcome of an experience extending over a period of thirty-six years. The book contains timely articles on the present needs of the country for high-class craftsmanship, and on the subjects of Art versus Beauty, pottery, porcelain, the preparation of clay, mold making and plaster, cases and working molds, building by hand, the potter's wheel, turning, making large pieces, cups, saucers and plates, casting, tiles, glazes and glazing, decoration, the fire, high temperature wares and clayworking for children. The book is handsomely illustrated, containing twenty-one full-page plates and twenty small sketches. The book was published by the D. Van Nostrand Company, of New York city, and sells for \$2.00.

CONDUCTIVITY OF FIRE CLAYS.

"The Thermal Conductivity of Fire Clay at High Temperatures," by J. K. Clement and W. L. Egy, is the title of Bulletin No. 36 of the Engineering Experiment Station of the University of Illinois. This bulletin is a description of a carefully conducted research to determine the thermal conductivity of commercial fire-clays at temperatures as high as 1200°C. From the results given, it appears that such fire-clay will transmit approximately .0022 calories per cubic centimeter per degree difference of temperature. In general the conductivity increases as the temperature is raised. Employing this value for the purpose of determining the radiation of heat through the brick walls of the setting of a 200 horse power water-tube boiler at the University of Illinois, for which the dimensions of the furnace and the inside and outside temperatures of the walls are known, it appears that when the boiler is working at its rated capacity, approximately 1.5 per cent of the heat developed in the furnace is radiated through the walls. The bulletin describes at length the instruments and

methods of calibration used in the experiments. The temperature measurements were made by the use of a thermocouple. Although the use of such apparatus as a means for measuring high temperatures is no longer a novelty, those who are concerned with high temperature measurements will be interested in the description of the thermocouples and with the method employed in their calibration. Copies of Bulletin No. 36 may be obtained gratis on application to W. F. M. Goss, Director of the Engineering Experiment Station, University of Illinois, Urbana, Illinois.

CHANGE OF FIRM NAME.

Edward Brown & Son, 311 Walnut street, Philadelphia, Pa., manufacturers of the Brown Pyrometers and Revolution Recorders, announce the change in their name to The Brown Instrument Company. The officials of The Brown Instrument Company are exactly the same as the members of the firm of Edward Brown & Son. The new concern also announces the opening of an office in the new Oliver Building, Pittsburg, Pa., in charge of Mr. W. H. Gibb. It is said that the large amount of business being done by The Brown Instrument Company in the Pittsburg district has necessitated this step.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

EARLY OPENING of navigation and the heavy influx of brick as a result have combined to create weaker conditions and prices have declined since last reports. Orders have increased and withdrawals on outstanding contracts have done the same, with the result that prices have been maintained at reasonably steady figures regardless of the increased receipts. Both domestic and foreign bricks have shared in this condition and as this is written, buyers are paying full quoted figures for substantially everything they purchase. Prices run about as follows:

Front, buffs, No. 1, \$32.00; grays, shaded and speckled, \$32.00; white, No. 1, \$32.00; Hudson River, common, \$5.50 and \$6.00; light, hard, \$5.00 to \$5.25; pale, \$4.00; No. 1 fire, American, \$25.00; No. 2, \$20.00; Scotch, \$35.00. Perhaps upon large stocks or quantities these figures could be shaded, but they represent the conditions as accurately as possible as this is written.

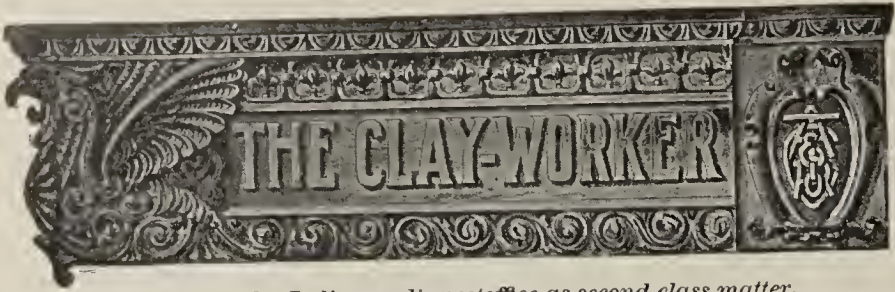
The possibility of a general building strike in New York the first of next month has not passed, and in some degree it is affecting the brick trade. Builders are not ready to stock up with brick until they are certain of the future. This has been a potent influence in restricting sales and in holding down prices. Some are of the opinion that if the strike difficulty was not imminent, buyers would be forced to pay much higher prices for brick than now prevail.

The records for one week at the West Fifty-seventh street docks run about like this: On hand, eleven cargoes; sold, forty-two; arrived, thirty-eight; left over, seven. Perhaps other weeks would show a different situation, but this is considered fairly representative of the situation as a whole and shows in a general way what the transactions in and about New York frequently amount to.

The Rose plants at Roseton have begun operations and molding has been going on for several days when this was written. The works will be operated to their full capacity this season, with increased help and improved facilities. The outlook is favorable and conditions seem to warrant a liberal policy of this character.

The Board of Estimate of New York city has granted an appropriation of \$65,000,000 for the construction of new subways. Work will begin on some of them almost immediately. The intention is to extend the subway system over a considerable proportion of the East Side not now covered and across to Brooklyn.

BURTON.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIII. APRIL, 1910. No. 4.

CURRENT COMMENT.

If you would add weight to your words, be slow in making promises and be quick at keeping them.

* * *

When a man is too busy to read his trade papers he may be happy, but he is missing something that is worth while just the same.

* * *

If it is that comet that is making the early spring, here's hoping it will not wait seventy-five years to pay us another visit, but will come often and stay longer.

* * *

If the baseball boys will just play up lively now we may forget the high price of living and a few other earthly worries for a couple of hours now and then any way.

* * *

Whatever goes wrong these days, blame it on the comet, and then when we get this old world mixed up in its caudal appendage we can give its tail a twist to get even.

* * *

Our wise philosophers have taught us that a virtue may be overdone into a vice, or a vice controlled until it becomes a virtue. Maybe that is what has happened to some of our reform waves.

* * *

There is not much danger of over-production in clay products this year, nor next for too small margins of profit if the business is handled rationally, for the building season has started early and promises to be great.

* * *

The N. B. M. A. met at Pittsburg. Then Pittsburg had such a spasm of virtue and reform as was never known before. Is this a mere coincidence or will other cities, seeking reform, soon start to besieging the officers of the N. B. M. A. to hold a meeting in their midst?

The year 1910 should be a banner year in industrial life and in building operations. Keep this in mind and watch the results.

* * *

The man who doesn't take pleasure in his business must either miss a lot of the pleasures of this world, or else sorely neglects his business.

* * *

Illinois may lead in the quantity of common brick, but New York has the happy faculty of getting more money for theirs, and that's what most of us are after in the end.

* * *

Vitrified paving brick made a good showing, even if times were dull last year, which speaks well both for the enterprise of those in charge of municipal affairs and for brick as a paving material.

* * *

The difference between plain gambling and stock gambling is that the man doing the later thinks it is more dignified, and, as a consequence, feels somewhat distinguished until he goes broke. Then he is extinguished.

* * *

There may be too much money. Maybe that's why the cost of living is too high, but sometimes we are prone to doubt it. It's just as hard to get hold of and as difficult to accumulate as it ever was, or else we have not yet discovered the secret of "easy money."

* * *

Let us pause for a while in our railway wrangles for a bit of rejoicing over the fact that the courts have handed one to the Pullman people, lowering the price, if not the height, of upper berths, and then maybe we can work up courage to go after the porter for a lower schedule of tips.

* * *

Speaking of conservation, clay is used with a smaller percentage of waste than any other of our natural resources. What is left behind helps make ground and soil; what is burned and wasted at the kiln makes a splendid road covering, and even the old and broken brick can be crushed and utilized in various ways. Just compare this with what happens to timber, or even to cement and lime.

A BARREL STORY.

This is not a cooperage story, but the story of a barrel, given for the sake of furnishing an instance, as the preacher would say, to manufacturers of a point made recently—that every man should look carefully after his home trade before seeking a distant territory. The story was found in the current number of one of the leading ladies' journals and was told by the editor himself.

He had gone to some country town and while there, when Sunday came around, attended church. At the end of the services the pastor called the attention of the congregation to the fact that the ladies of the church were packing some barrels to send to the poor and needy in a city tenement district. What struck this editor as queer about it, however, and what would appear queer and peculiar to the thinking world, was that while he was thoroughly familiar with the subject of sending barrels to the poor and needy in the country districts, yet now, when he was in a country town he found the people packing barrels to send to the poor and needy in the city districts—practically right under the shadow of the other people who were packing barrels to send to the country and to distant nations.

The thing that impressed him was the peculiarity of the imagination that would sympathize with poverty and suffering quite a distance away while overlooking the same state of things right around them that were receiving the sympathy and attention of others at some distance.

It is not the moral point we are after here, nor is it the

intention to deliver a sermon on the fréaks of the imagination; but it is the desire to call attention to the fact that some of these same traits manifest themselves in business life, and manufacturers in one district ship to another, while those in the other district ship to the manufacturer's own town; while really there is no excuse for it from a logical business standpoint. This point was made in a previous article—that people should cultivate their home territory before going after distant fields. And it is better for your trade, as was also stated in a previous article, to concentrate more attention on the nearby trade.

FINE POINTS IN FREIGHT FIGURING.

That freight is a matter of importance in the brick business no manufacturer needs to be told. There are, however, some finer points in the calculation of freight and the making of claims for over-charge that may be new and interesting.

The writer had an eye-opener on this point recently in a talk with a lumberman. First, the discussion turned on freight rates and the qualification necessary in a man to handle a business involving wide distribution and figuring out the best combination of shipping points and delivery.

Then came the point of excessive rate and over-charge on the part of the railroads and that many a man is not well enough informed on the details of rate making to pass upon and be sure when he has a claim. He said that in their business they had followed up quite a lot of these matters and were almost continually filing claims for over-charge, either due to excessive weight, wrong classification, rating or something, and their returns from this source were quite large; but the startling part of it was that after all this was done, all the claims they could recognize and collect themselves were cleared up, that he had found a firm of attorneys who would take his freight bills, go over them, hunt up places where there were claims, and handle the matter for one-half the proceeds resulting from any claims they might find and collect. Out of this arrangement and after the freight bills have been passed by themselves as having no claim, he said they were getting returns of about \$50.00 per month and the lawyers an equal amount. It so happened that the law firm in this case had as one of its members a man who had been railway commissioner and he was peculiarly fitted to pass upon all railway matters, consequently he could locate over-charge and claims where the average man would never see anything wrong. Also, knowing the technical side of rate making in railway legal matters, this firm was peculiarly qualified to handle claims of this kind. It was a case of getting down into the very finest points of freight figuring and serves to illustrate the fact that the average brick manufacturer who is continually shipping may have more of the profits in his product going into unnecessary freight bills than he knows of.

The first thing that suggests itself is, it would pay the shippers of brick and other clay products to get together in each community and have a traffic man look carefully into all these things. Undoubtedly there are many cases where it would pay good dividends. But, here is the point that intrudes itself as pointing to a more logical conclusion: The railways themselves are beginning to realize what all this means and should take steps to render it unnecessary. Take the case mentioned above. The railroads had to face law suits, maintain the expense of extra legal talent and then they had to give up money on what they considered hopeless claims against them. If more manufacturers and shippers would take up these matters, the railroads themselves would soon awaken to the futility of allowing errors in the making out of freight bills, and both shippers and railways could save enormously in the expense of attorneys necessary among shippers to stand guard over the railroads and to see after these things. In short, by getting together to shake off all

this legal entanglement and legal mix-up would enable one to go out and settle any claim in a business way as among business men; just as one could go to a store or a factory with a complaint of damaged goods or over-charge and get it credited to him. It would mean a saving to both shippers and the railroads if they would make up their minds to do this same thing.

SOLVING THE INDUSTRIAL ACCIDENT PROBLEM.

We have been following up experiments in the old country, and theorizing for some time on the problem of accident and sick benefits and other things of like nature. Now we have an example of a practical effort at the solution of this problem by the International Harvester Company, who have instituted a system of paying their employes a fixed benefit in case of death. This is to go into effect on May 1, 1910, and applies to all the 25,000 employes of the company.

It may be recalled that this is one of the companies, one of the soulless corporations, attacked during the past year by some magazine writers as spending money in paying lawyers to keep them from paying their own employes in case of accidents, and said to have a very bad record. The fact of the matter is, that this concern, like many another one, has been worried by this problem of accidents, and has probably given much serious thought to some means of solving it rationally, and it is certainly to its credit to find it among the first to put into practice some general system of this kind to eliminate law suits and bury the cause of contributory negligence, and at the same time have a system by which the employes are paid in case of accident or death resulting therefrom, regardless of legal liability.

It has probably been figured out that it will be cheaper to pay some unworthy claims than to maintain the legal expense involved by fighting unjust claims. In other words, the money necessary to carry insurance necessary to keep the company free from the recklessness of employes will now be used as a benefit out of which the accident expenses will be paid. All the details are not available at this writing, but it seems that the burden will be carried by both the company and its employes. The schedule of benefits referred to is, in case of death, three years' average wages will be paid, but not less than \$1,500.00 nor more than \$4,000.00. For the loss of a hand or foot, one and one-half years' wages with a minimum of \$500.00 and a maximum of \$2,000.00. For the loss of both hands or feet, or one hand and one foot, four years' wages, but not less than \$2,000.00. In case of other injuries, one-fourth wages during the first thirty days, one-half for a longer period, or a pension if the injury is permanent. It seems for assistance in maintaining this fund, the company will collect contributions of from six to ten cents per month from its employes to be added to the thirty-day disability fund, thus increasing the benefits from that source from one-fourth to one-half pay. It is said that under this plan the employes will not lose any legal rights they now possess. The system is to be managed by an industrial accident department created by the company. With proper management this will render unnecessary the bringing of law suits and legal processes of this kind.

Other companies will watch with interest the outcome of this. Probably the scheme as outlined here may not be practical for small companies, but if the scheme is good it may be carried out by the smaller companies who will group themselves on what is known as the mutual plan to make the magnitude sufficient to maintain such a scheme or department.

It is awfully hard to get even a slice of comfort out of railroad wrangles without some bitter flavor in it. Just as we were preparing to enjoy this new uniform demurrage agreement, we find that railroads are exacting a bond from those seeking to take advantage of the reciprocal agreement, and now dissension has broken out again in some spots.

TRADE LITERATURE.

ROAD LOCATION, DRAINAGE AND CONSTRUCTION is the title of an interesting pamphlet compiled by the Evens & Howard Fire Brick Company, of St. Louis, Mo. It is a reprint of a convention paper by W. G. Goit, president of the Oklahoma Good Roads Association, and was read before the National Good Roads Convention at Topeka, Kans., Dec. 15, 1909. It is valuable to the advocates of good drainage in that it puts forth the advantages of good drainage in a concise and interesting way. The Evens & Howard Company are sending this pamphlet with their compliments to the trade and will be pleased to furnish a copy to any one interested on request for same.

THE PENNSYLVANIA FIREPROOFING COMPANY, of Elk county, Pa., has recently issued an attractive pamphlet setting forth the merits of their several products, showing tests made on their materials and the method of employing their fire clay, hollow terra cotta tile in the forms of end construction flat arches, segmental arches, book tile for roofs, shoe tile for girders, split tile for furring, partition tile, building blocks and column coverings. The booklet contains several price lists and tables showing standard sizes and weights and a number of illustrations of various types of houses and buildings under course of construction, in which their materials were used.

LARGE ORDER FOR CHAMBERS BROS. COMPANY.

Chambers Brothers Company, Philadelphia, Pa., who make a line of paper feeding and folding machines, as well as brick machinery, write they have recently booked a large order for paper feeding and folding machines for the Curtis Publishing Company, publishers of the Ladies' Home Journal and the Saturday Evening Post. Mr. J. Howard Chambers, manager of Chambers Brothers Company, says he believes it is the largest order in amount ever given in that line of business for sheet-fed folding machines. It means a night and day force in that branch of their shops for some time.

DO YOU WEAR NECKTIES?

The readers of THE CLAY-WORKER almost without exception must answer the above query in the affirmative. They do, one and all, wear neckties, and hence will be interested in the advertisement of "Egypto" neckwear on page 627 of this issue. Like the name they bear, Egypto ties are attractive. They are offered at the exceedingly low price of six for \$1.00, simply to get them introduced so that local dealers will feel obliged to carry them. In short, it is an advertising proposition and our readers who want to profit by the offer will do well to send in their orders at once. The Indianapolis Neckwear Company is a well established firm and will make good their offer as set forth in the ad.

THE CLAYCRAFTER.

The first issue of the Claycrafter, a bi-monthly pamphlet issued by the C. W. Raymond Company, Dayton, Ohio, certainly does that company a great deal of credit and will undoubtedly be read with much interest by the clay trade. The pamphlet shows the progressive spirit of the Raymond Company and should prove an excellent advertising medium for them. The cover is unusually attractive and illustrates the various phases of the use of clay products in structural work. The first issue is dedicated to the Arts and Sciences of Claycrafting and contains interesting articles on the testing of clays, rules for ascertaining diameters of pulleys and speeds of shafts and the soft-mud brick manufacture. Charles W. Raymond, Jr., is the editor. Sample copies will be sent any clayworker on request. Write the C. W. Raymond Company, Dayton, Ohio.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 635.]

FOR SALE, WANTED, ETC.

FOR SALE.

One complete portable brick plant now at Vernon, Ala. Address BOX 4—T. W., 41 d Care Clay-Worker.

FOR SALE.

One Mansfield 12x24 80 h. p. left hand side crank engine. For delivery July 1st. Can be seen now running.

SHELBY SPRING HINGE CO.,
41 d m Shelby, Ohio.

FOR SALE.

A first-class brick plant in every respect. Plenty of the very best clay. Splendid market for brick. Have lot of orders on hand at the present time. Must sell to wind up estate.

CARROLLTON BRICK COMPANY,
31 d Carrollton, Ky.

For Sale, Wanted, Etc., Ads Continued on
Pages 628-629.

"A Quality Above All Others." "Built Right—Run Right."



IF THE COMET STRIKES

IF OUR COMET SHOULD STRIKE
YOUR BRICK PLANT.

If our Comet were to strike your plant
it would be a blessing instead of a disaster.

It would mean that all the old or "near
old" equipment which is holding back the earn-
ing possibilities of your plant would be re-
placed with "Built Right Run Right" machinery.
A line which will do more than its part toward
both making and saving you money. It is a well
known fact that wealth comes as much from what
you save as from what you earn. Our machinery
will increase the quantity and quality of your
product and will save you the time, labor, and
expense of many repairs.

We build every machine and appliance re-
quired for manufacturing every kind of Clay
Products by any process. Fifty years of ex-
perience and attention to the needs of Clay
Workers has built up a trade and an or-
ganization which is a credit to the Clay
Working Industry. You are invited to use
this organization and experience.

**The American Clay Machinery Co.
Bucyrus, Ohio.**

"A Quality Above All Others." "Built Right—Run Right."

Be sure and mention THE CLAY-WORKER in answering ads.

"A Quality Above All Others." "Built Right—Run Right."

Steam Pipe Rack Dryer

The Steam Pipe Rack Dryer is a rack dryer arranged for drying brick on pallets. The pallets are made of steel plates. The 1-inch pipes which form the shelves or racks are placed parallel in a horizontal position and are supported at intervals with vertical cast-iron racks, having grooved cross-piece properly



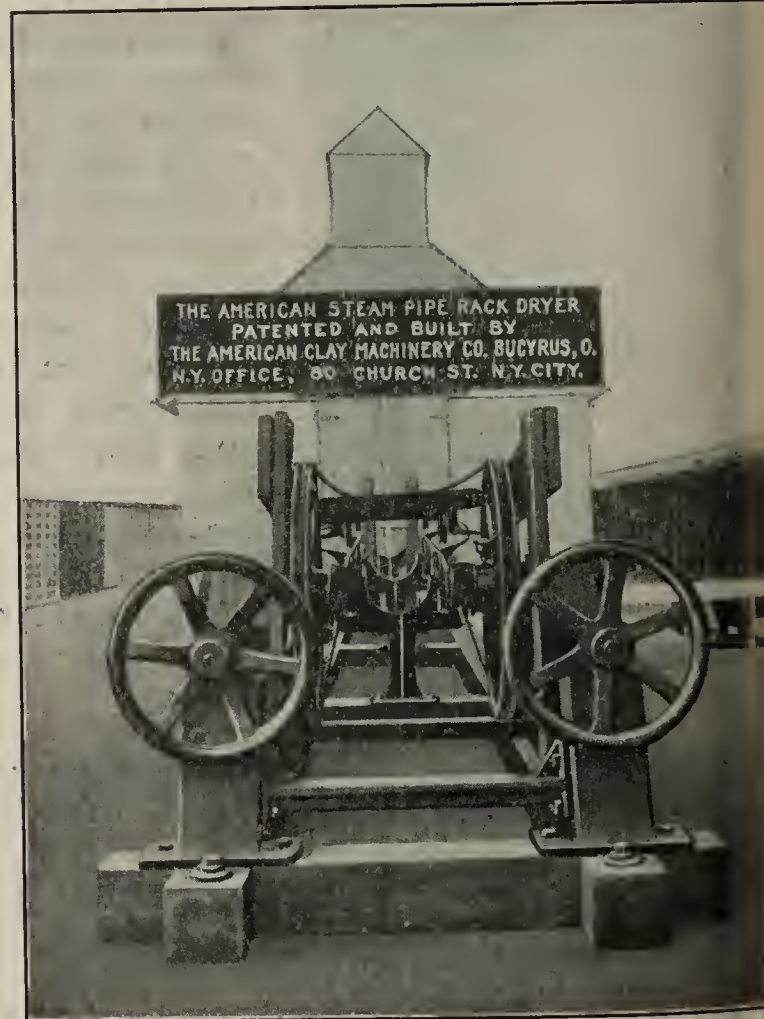
spaced for supporting the pipe which form the shelves. The steel pallets slide in endways onto the pipe racks. The ends of the pipes, which form the shelves or racks, are connected with special manifolds, through which the steam is introduced.

An entirely new method of circulating the steam through the pipes is used. This system is economical in the consumption of steam, reducing the quantity of fuel required. The brick on the steel pallets are dried individually and not collectively, therefore the time required for drying is greatly reduced and it is possible to dry the

THE
BEST
DRYER
BUILT

THE
BEST
DRYER
BUILT

brick successfully in from ten to twelve hours. The pipe rack dryer is constructed in sections or divisions, and the circulation of steam in each division is under control, so that the heat may be regulated according to requirements. The dryer is erected in a specially constructed building, so arranged that the circulation of air for carrying off the vapor from the drying brick may be regulated as required. The manipulation of the vents or dampers is always under perfect control. This feature of the system enables the drying to be regulated according to requirements and is a very important point in the rapid and successful drying of brick. For conveying the pallets loaded with brick to the dryer we use a cable conveyer system. For soft-mud brick the upper end of the cable conveyer is fitted with a dumping attachment, and when the mold of brick is dumped onto the pallet it is then automatically delivered to the cable conveyer and is conveyed to the pipe rack dryer. When the brick are dried the pallets are taken from the pipe racks and placed on the same cable conveyer, which may be extended out to the kilns. This system does away with all trucking from the machine to the racks, and does away with all wheeling from the racks to the kilns. The brick are handled on the pallets at all times and are therefore delivered to the kilns in a much better condition than when they are loaded from the racks on the barrows and wheeled into the kilns.



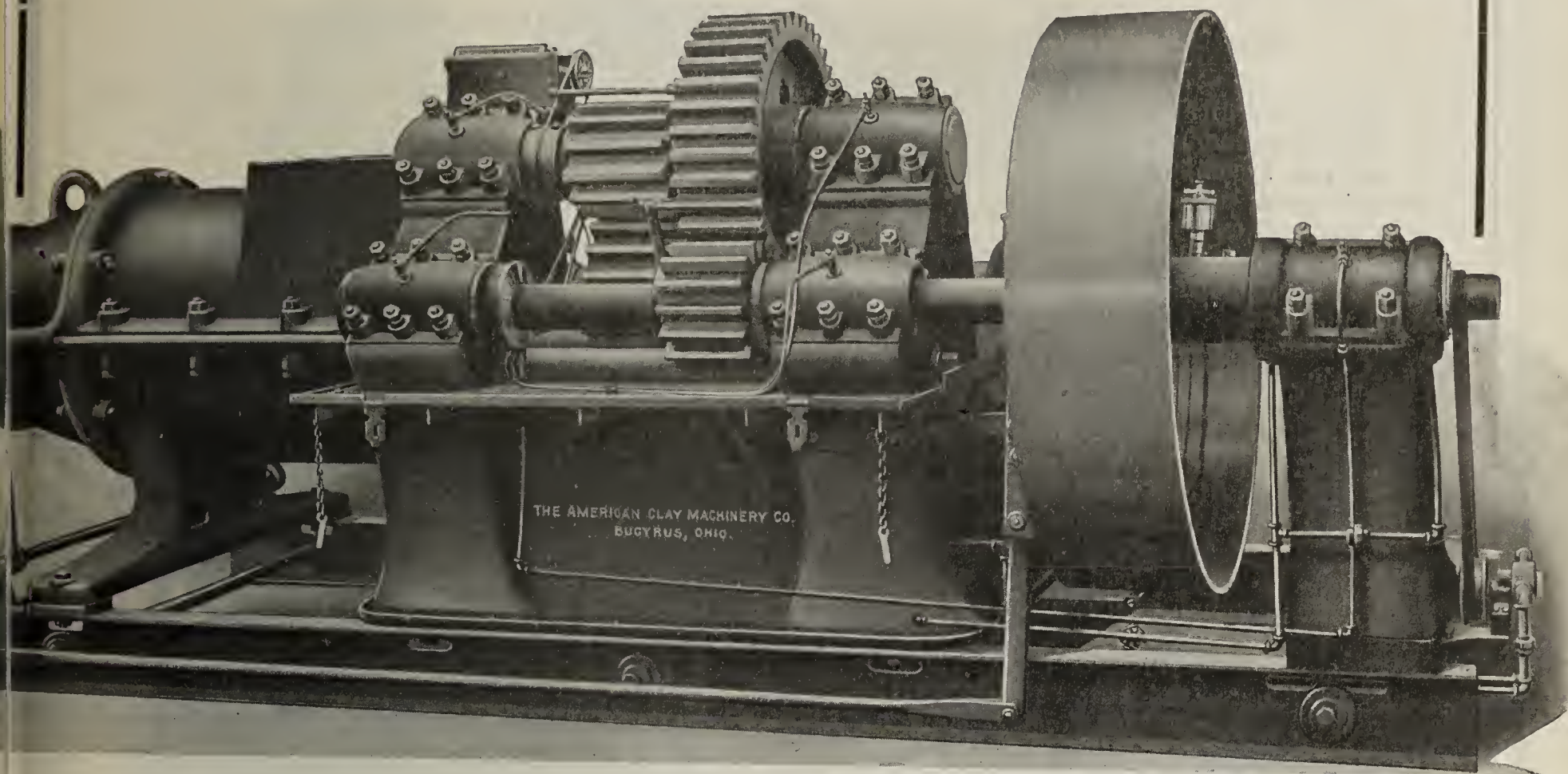
The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



"A Quality Above All Others." "Built Right—Run Right."

"A Quality Above All Others." "Built Right—Run Right."

Self-Oiling Auger Brick Machine



When we designed and built the first No. 65 Auger Machine, a little over a year ago, we felt confident it would be a most dependable machine; one with a capacity beyond anything else, and a quality able to back such a capacity. The experience of all users of the No. 65 amply proves that our expectations were well founded and our confidence not misplaced. It is a machine you can depend upon.

The oiling system consists of a force feed pump driven by either belt or ratchet. Each bearing is connected by a pipe leading from the force pump, and each bearing has its individual sight feed so that any one can see that each bearing is receiving the proper amount of oil. A catch pan which is made a part of the base of the auger machine receives all drip, and the oil thus collected is saved. While this is a source of oil economy it is far more economical in saving bearings and gearings.

The illustration shows our No. 65 Auger Brick Machine and our improved central oiling device for thrust bearings. By this improvement thrusts are oiled from the center instead of trying to get the oil to run from the periphery of the thrust plates to the center. The gravitation on a revolving plate or disc is from the center and not toward it, consequently by the old system there was no assurance thrust plates received the proper amount of oil. Our new method of applying the oil by force feed to the center of the plates insures plenty of oil and freedom from repairs.

This Force Feed Sight Oiling System can be applied to any of our clayworking machinery. Correspondence solicited.

We build every machine and appliance needed for making clay products by all processes.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



"A Quality Above All Others." "Built Right—Run Right."

ALWAYS
THE
BEST
AUGER
BRICK
MA-
CHINES

"A Quality Above All Others." "Built Right—Run Right."

A Screen that Out-Screens all Screens

Greater Capacity. Less Wear and Tear. Improved Output.

Here is a radical departure in Clay Screens. The motion is centrifugal instead of vibratory. The life of the machine is thus lengthened and the capacity increased.

As the accompanying cut shows, the screen is made up of two hoppers substantially mounted on a steel frame. The screen plate is circular with large screening surface. It is supported by spiders in a horizontal position. The spiders are keyed to the vertical shaft which is connected to the driving shaft by a pair of bevel gears.

Just beneath the screen plate is a steam coil heater arranged to heat the screen plate to prevent damp clay from clogging the perforations in the plate.

**WILL
SCREEN
MORE IN
LESS TIME
WITH LESS
POWER**

Surrounding the vertical shaft is a cast iron hopper or spout through which the clay is fed to the screen plate. This hopper can be raised or lowered to regulate the flow of clay on the screen. The hopper being always full of clay, keeps an even flow to the screen. The screen as it revolves throws the clay from the center to the outside of the screen plate, the flow being even and regular. The large particles of clay, too large to pass through the perforations, pass over the screen plate to the outside and fall through the outer housing to a spout conveying them to the grinding pan for re-grinding. The fine particles of clay sift through the screen plate into the inner housing or hopper and pass to a conveyer and into the clay bin.

The whole operation is rapid and thorough and the principle insures great capacity and freedom from trouble. Many of these screens have been installed and are giving universal satisfaction.

In actual operation the No. 147 Screen, which has a screen plate six feet in diameter, is screening equal to the capacity of two nine-foot dry pans. We also build this screen with a four-foot screen which will handle clay to the capacity of one pan.

Full particulars as to the construction and operation of this screen will be sent upon request.

We build every machine and appliance required for the manufacture of every class of clay products by all processes. We are much the largest manufacturers of Clay Working Machinery in the world. Manufacturing as we do every machine and appliance right in our own factories, we are better prepared to serve you at a saving in time and money than others and are able to guarantee the quality of every machine.



Centrifugal Clay Screen.

Patented and Patents Pending.



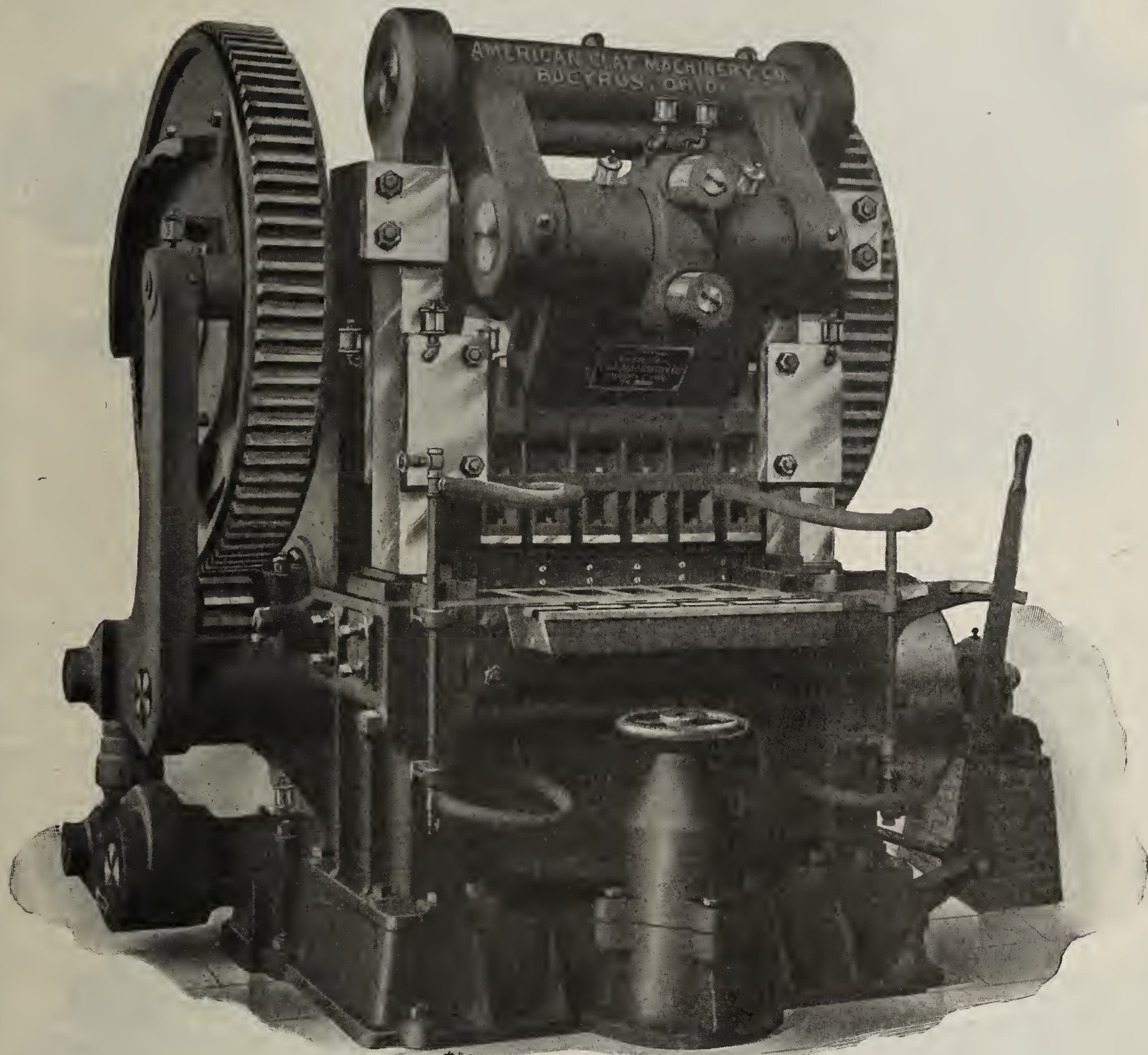
The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

"A Quality Above All Others." "Built Right—Run Right."

"A Quality Above All Others." "Built Right—Run Right."

Dry Press Brick Machinery



No. 599—Six Mold Press.

A PRESS
OF
PROMISE
AND
PERFORM-
ANCE

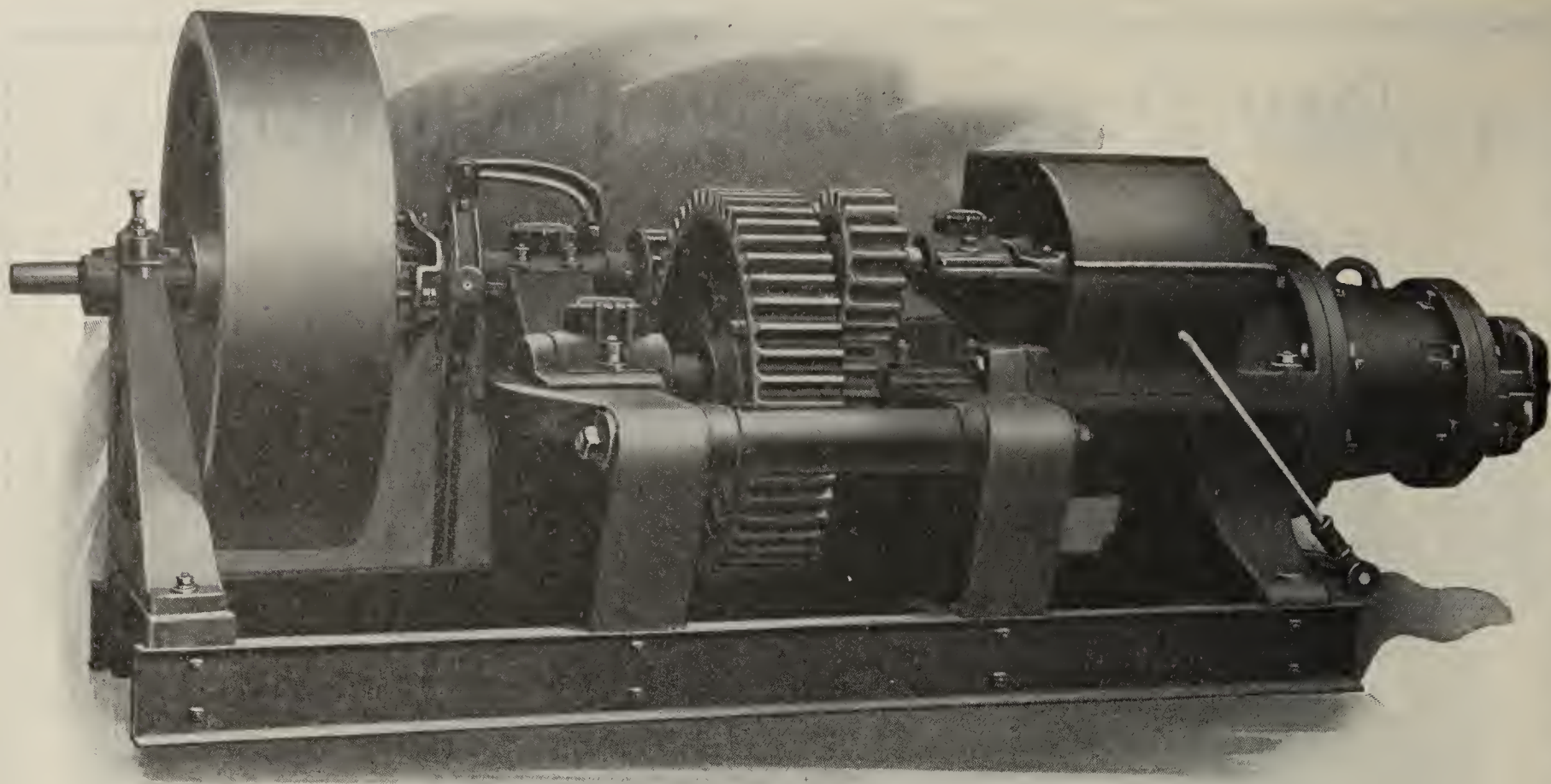
This press is built in a most substantial way, and is made to stand many years of hard service, is constructed on the simplest possible lines, all its parts being accessible and easily kept in repair. The mechanical movement of the press is such that the full pressure is held long on the brick and without loss of time or diminishing the capacity. The result is a brick that is perfect and uniform throughout and without a flaw, seam or granulation. The machine is supplied with a friction clutch pulley enabling the operator to have complete control over the machine at all times. The stresses incident to the pressing of the bricks are taken up by two immense steel side bars. These bars serve a double purpose, they also serve as guides for both top and bottom crossheads. The machine is on the toggle principle, very heavy, with all wearing parts adjustable. The lower crosshead moves upward in ejecting the brick, this arrangement relieving the press of excessive stresses or using unnecessary power. The charger is arranged with separate guides. The mold box liners can be quickly changed and the liner adjustment changed. The thickness of the brick can be regulated. The bearings are long and gearing ample while the crank shaft is of steel. A full description of this and other clayworking machinery for the asking.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



"A Quality Above All Others." "Built Right—Run Right."

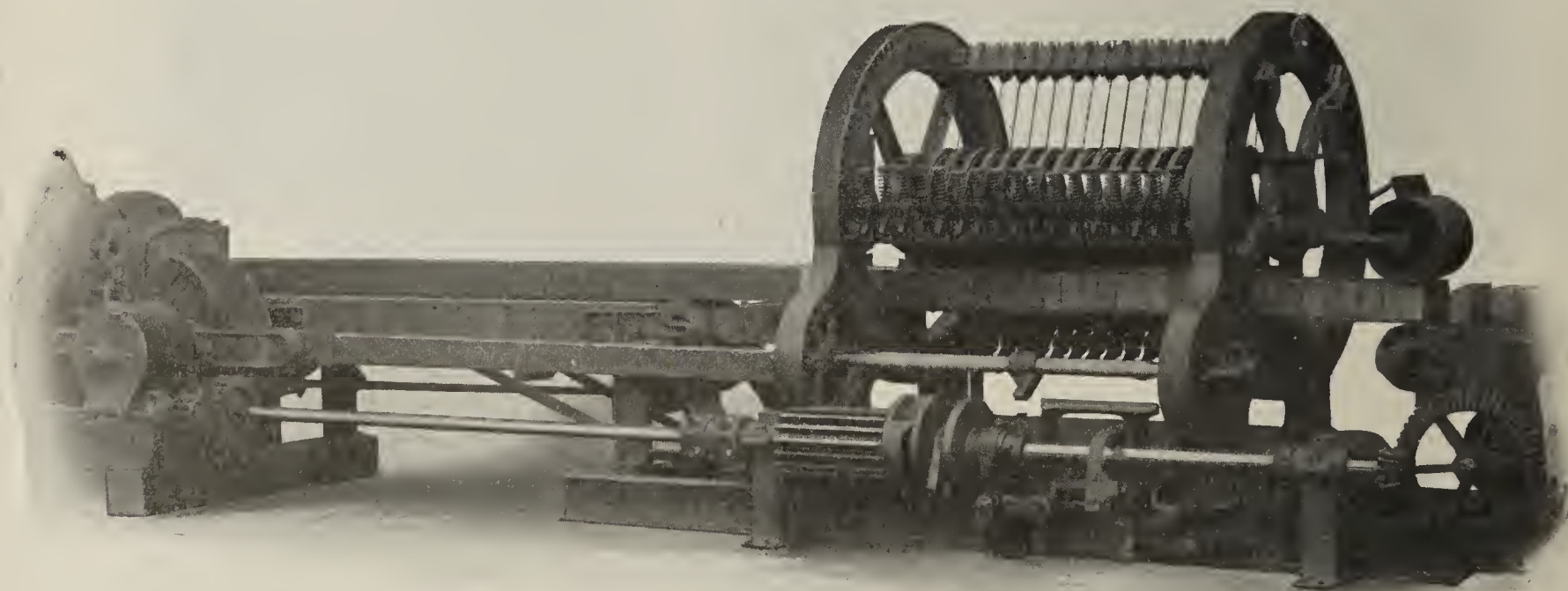


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammouth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



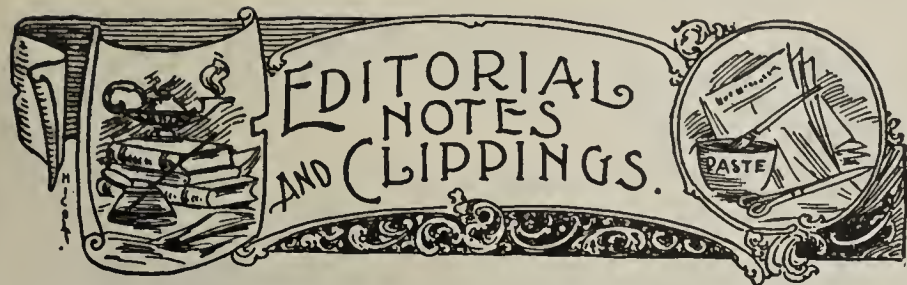
AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 664-667.



Charles Frances is building a new brick plant at Boynton, Oklahoma.

Will H. Gleason, of Mason City, Iowa, contemplates erecting a drain tile plant in Minneapolis, Minn.

The Bennett, Borman Brick and Tile Company, of Metropolis, Ill., has been incorporated with a capital stock of \$7,500.

The Tulsa Vitriified Brick Company, of Tulsa, Okla., is making extensive improvements, including the rebuilding of the dryer.

M. M. Bushong has been appointed manager of the Standard Vitriified Brick Company, at Coffeyville, Kans., which has recently been reorganized.

The Duclos Brick Yard, at Wrenshall, Minn., has been sold to Bert and John P. Hart, including more than fifty acres of land. Both men are experienced brickmakers.

The Shiniston Brick Company, of Shiniston, W. Va., has been incorporated by Ernest Pigott, L. E. Hawkins, L. F. Chalfant, C. A. Short and F. A. Burnett, all of Shiniston.

The Loyce Brick Plant, at Grafton, W. Va., was sold recently to L. M. Shute for \$8,000. Mr. Shute will make a number of improvements in the plant in the very near future.

Over 4,000,000 bricks have been shipped to the Isthmus of Panama by the Purington Brick Company, of Galesburg, Ill. The cities of Panama and Colon are paved with brick made by this concern.

The Aetna Brick Company, of Berlin, Conn., has filed a certificate of incorporation. The concern has a capital stock of \$50,000, and the incorporators are R. O. Clark, E. G. Robins and H. R. Clark.

The plant of the New England Steam Brick Company, at Barrington, R. I., which was closed down for a couple of months during the winter season, has been opened up again and brick are now being shipped with regularity.

W. E. Wood, of the Wood Construction Company, of Flint, builders for the General Motors Company, has purchased the Frieseke brick yard at Owosso, Mich., for \$10,000. The brick will be used in the construction of factories at Pontiac, Flint and Owosso.

The Patoka Brick and Tile Company has just been organized at Huntington, Ind., with a capital stock of \$25,000, for the purpose of manufacturing building brick by the stiff mud process, also vitriified street pavers and drain tile out of the famous clay and shale found in that locality.

O. A. Kintner, general manager of the Sapulpa Brick Company, reports that he will soon have the plant at Sapulpa, Okla., ready for operation. The plant is up-to-date in every particular, being equipped with American Clay Machinery Company machinery and has a capacity of 100,000 per day.

The New England Brick Company's yard, at Mechanicsville, N. Y., which was destroyed on January 6 with a total loss of nearly \$40,000, is again in full operation. March 28th everything was in readiness to start the plant in full. The rebuilding of the plant was done in record time, every part of the work being pushed to the utmost by Superintendent Charles Vredenburg.

L. S. Merrick, a pioneer brick manufacturer, of Syracuse, N. Y., died at his home in that city during the latter part of March. He served through the Civil War, having enlisted when but a school boy, and returning home after the war engaged in the brick business with his cousin, Charles H. Merrick, and the firm has been in business ever since, turning out many million brick per year.

The Tempest Brick Company at Manown, Pa., was never in a more flourishing condition than at the present time as is evidenced by the fact that the company is finding it necessary to build additions to the plant as well as install new machinery so that the rush of orders can be met. E. T. Graham, superintendent of the company, states that the rush has scarcely, if ever, been equalled. The company is shipping all over the country, orders being received from as far as Portland, Ore. The extra machinery is being secured from the

Bonnot Machine Company, of Canton, Ohio, and will give the plant a thorough equipment.

W. M. Mitchell writes that he has leased, with an option to buy, the brick plant of Redett & Sons at Fredericksburg, Ohio.

The J. B. Sewell Brick Factory and Trading Company has completed its new plant at Baldwin, Iowa, and commenced making brick the first of April.

O. W. Dunlap, Bloomington, Ill., whose company manufactures the "Perfect" clay screen, writes that the prospects are unusually good for a very prosperous season.

The firm of Meyer, Moore & Co. has purchased the brick and tile plant of George T. Meyer & Co., at Memphis, Mo., and business will be continued under the new firm name.

The brick plant at Latonia, Ky., which has been in the hands of a receiver and has not been operated for some time, has been sold to the Busse Brick Company, of Covington, Ky., for \$25,000.

W. F. Scott, President of the Scott-Madden Iron Works, of St. Louis, Mo., paid a hurried visit to THE CLAY-WORKER sanctum recently. He says they are as busy as can be and that he has been kept on the jump ever since the organization of the new company.

The brick and tile plant formerly owned and operated by the Crooksville (Ohio) Brick Company has been acquired by the Keystone Brick and Tile Company and is now in operation. Felix Hughes is the new superintendent.

A. E. Rosenthal, who has had charge of the sales department of the Davenport Locomotive Works, of Davenport, Iowa, resigned March 15, and Mr. A. L. Hageboeck, vice-president of the company, will have charge of the sales department and general commercial affairs of the company.

The Bloomfield (Ind.) Brick Company has received an order for 4,000,000 building brick from one concern to be delivered as rapidly as the order can be filled. This is the largest order ever received by this company and means five hundred car loads. The plant is being enlarged.

A complete brick plant was recently shipped by the Stevenson Foundry Company, of Wellsville, Ohio, to Havana, Cuba. The machinery, boxed in two-inch oak, hooped bound casks and filling two car loads, was shipped to the Ward Steamship Company at New York city. Its value was approximately \$6,000.

At the annual meeting of the C. P. Merwin Brick Company, New Britain, Conn., which was held the last week in March, the following officers were elected: President, R. C. Merwin; Treasurer, F. G. Vibberts; Manager, R. O. Clark; Secretary, C. P. Merwin. The retiring officers are, Treasurer H. D. Payne and Secretary George E. Green.

The brick and tile works of Prescott, Iowa, was burned April 2. It being so very dry, the sheds and all frame works went up as one flame. The estimated loss is about \$4,000, with only partial insurance. This will cause quite a delay in rebuilding and getting repairs just at a time when there is a great demand for tile. The cause of the fire is not known.

W. R. Whitesides, president of the Muskogee (Okla.) Vitriified Brick Company, is very busy at present enlarging the plant from a 50,000 daily capacity plant to 100,000 daily capacity. The work is being done under the supervision of H. B. Harmon, of the American Clay Machinery Company, Bucyrus, Ohio. The product of the plant is building and paving brick, for which there is a good demand.

Fire of unknown origin practically wiped out the mammoth brick plant of Thomas Cisler & Son, Marietta, Ohio, April 1. The loss will reach \$25,000 and the loss from the plant being idle as much more. The Cisler plant is one of the largest in southern Ohio. In addition to the regular business, it had just landed a contract for brick for five miles of paved street and county road here. The plant was partly insured.

The articles of incorporation of the Boukind-Carlson Brick Company, at Crookston, Minn., have been filed with Secretary of State. This concern has taken over the entire plant of the Northern Pressed Brick Company, of this city, and has already started preparations for the manufacture of common and pressed brick the coming season. The officers are Rudolph Carlson, president; Marcus Johnson, vice-president; Peter Boukind, secretary and treasurer, and Messrs. Carlson and Boukind will have the active management of the new concern. Mr. Boukind having charge of the office and business

(Continued on page 623.)

THE MANUFACTURE OF BRICKS FOR STREETS AND ROADWAYS.

In a paper read before the first American Congress of Road Builders, Mr. Geo. W. Kummer describes the primary elements of a "Vitrified Brick" as: First, a suitable clay, a mineralized clay, one possessing annealing qualities. Second, the sufficient grinding of this material and its **proper formation in the green state** as absolutely essential for the production of a good paver which he preferably designates not as a vitrified but as an **ANNEALED BRICK**.

During the processes of proper manufacture the constituent elements of such a clay are converted into new forms and the finished brick is a homogeneous mass, free from lime as an active element, and is annealed with every clay particle bonded. This very excellent description of the finished article is in harmony with the requirement of engineering practice which stipulates that a street paver must not absorb over a given percentage of water within a specified time, nor lose more than a certain percentage of its weight when subjected to an abrasion test under established conditions; that it must in short possess not only transverse strength, but the quality of resistance to the ravages of impact, abrasion and absorption.

With this end in view, is it not a logical conclusion that a manufacturing process molding a paving brick to the required shape at one operation, with the constituent particles intimately bonded with the greatest amount of material per cubic inch of contents, and then leaving such a brick to be dried and burned without further mechanical disturbance of its structure, is **the method** productive of the best paver? The Chambers End-cut Auger Brick Machine with Automatic Indenting or Round Corner Cutter produces precisely this result.

The alternative process of molding a green brick to approximate shape, placing it in a press box and squeezing it between two plunger plates in order to change its shape, is commonly termed the Repress Method. That the term is erroneous is evidenced by the fact that Repressed Paving Block are **expanded in bulk** by repressing and have from 3 to 4 cubic inches greater measurement after repressing than before. The ill effects of this expansion of bulk is immediately shown by the fact that certain repressed Paving Block suffered from 4 to 5 points greater loss during the rattler test than End-cut Block not repressed, made from the same shale, on the same plant, and burned in the same kilns.

The End-cut Machine is pre-eminently the one for this method of manufacture, because it not only molds a block of greater density than Side-cut Machines, but for the reason that the end-cut block possesses a structural formation that is in itself an element of strength and of resistance to wear. Since then a better article at less cost is produced without repressing, it would seem that the practice of repressing Paving Block was based entirely on some ground of commercial expediency.

Repressing breaks the bond between the particles formed in molding the material to shape in the brick machine and fails to establish a new bond equally good.

We Build This Machine and The Cutter.

We Also Build REPRESSES For Those Preferring The Repress Method.

CHAMBERS BROTHERS COMPANY
PHILADELPHIA, PA. and CHICAGO, ILL.

EDITORIAL NOTES AND CLIPPINGS—Continued.

end, while Mr. Carlson will have charge of the manufacturing end.

The O. P. Brick Company, of Philadelphia, Pa., has been granted a charter to manufacture, sell and deal in brick and tile. The capital stock is \$400,000.

The Billings Pressed Brick and Tile Company, of Billings, Mont., has filed a certificate showing a change of name to the Fromberg Pressed Brick and Tile Company.

The Windsor Avenue Brick and Tile Company, of Hartford, Conn., has been incorporated with a capital stock of \$50,000, by James J. Dennis, Thomas G. Dennis and Stewart N. Dunning, all of Hartford.

In a recent letter enclosing subscription to THE CLAY-WORKER, which he says he regards as invaluable, Mr. L. Reisman, of the Texas Fire Brick Company, at Lasher, Texas, writes that his company is very busy turning out a high grade manganese and buff face brick and fire brick.

The Tyro Vitified Brick Company, of Tyro, Kansas, is installing two Bonnot represses and expects to have a face brick on the market by the middle of May. C. L. Perkins, for some time connected with the Standard Brick Company at Coffeyville, Kansas, is now in charge of the Tyro Company's plant as superintendent.

The Niles Fire Brick Company will make extensive improvements to their plant at Niles, Ohio, which will double their capacity. Four kilns of 90,000 capacity will be erected at once and provision will be made for four more. They expect to have the new plant in operation by July 1, at which time two hundred and fifty men will be employed.

Willis Walton Tuttle, a member of the firm of Tuttle Brothers, the well-known brick manufacturers at Newfield, Conn., died at his home in that place April 4, at the age of 54 years. He was the son of George Tuttle, and was born in that town. He had been associated with his brothers in the brick business at Newfield for a number of years.

J. J. E. Gibson, an old and experienced brick maker, has re-established his brick yard at Tenaha, Texas, and has begun preparations for a brick kiln. Mr. Gibson made brick in Tenaha many years, but left there and went to Fort Worth, where he was contractor and builder for several years. His son-in-law, Mr. Bremer, will assist Mr. Gibson. The first brick will be made by hand, but later a machine will be installed.

The brick manufacturers of Springfield, Mass., are getting ready for a busy season. The Willimansett plant, owned by J. J. Finn, is planning to double its output this year, and has installed another brickmaking machine. The Lynch Bros. Brick Company will begin work next month, and plan to put in a busy season. The Daniel O'Connell Sons expect to largely increase the output of their brick yard this year, and the brickmakers all along the line are looking for a great increase in work over last year.

Burning for two hours with almost no opposition, fire in the plant of J. C. McDonald & Sons, manufacturers of brick and tile, Detroit, Mich., practically destroyed the plant before it was subdued. The cause of the fire is not known. It had evidently been going for some time before it was discovered, and even then slow progress was made in fighting it, due to the fact that the yards are situated two miles outside of the city limits, and that the firemen were unable to secure any water supply when they finally succeeded in getting there.

A. E. Hilder, secretary and treasurer of the Sidney Brick and Tile Company, of Sidney, Manitoba, in renewing subscription to THE CLAY-WORKER, writes that business is very good with them, and notwithstanding their plant has been in operation less than a year, they have disposed of their entire stock of brick and are now making plans to double the capacity of the plant, which is equipped with Martin machinery which Mr. Hilder says has given them the best of satisfaction.

The Hill Brick and Tile Company, the Schlessinger Brick and Tile Company, the Brewer Brick and Tile Company and the Schraeder Brick Company have effected a combination to be known as the Colorado Brick Association, and offices are soon to be established in the Mining Exchange Building, Colorado Springs, Colo. Articles of incorporation have been filed by the new association with the Secretary of State in Denver. The incorporators are Benn Brewer, John Hill and Samuel Schlessinger, all of Colorado Springs. The capitalization is \$5,000. According to one of the men concerned, the object

of the incorporation is to lessen operating expenses and do away with unnecessary competition.

The Poudre Valley Press Brick Company, of Fort Collins, Colo., will put in an equipment for the manufacture of paving brick.

James Porter, a fire brick manufacturer, of New Cumberland, W. Va., died the latter part of March. He was 68 years old and leaves a wife and five children.

The plant of the Hydraulic Press Brick Company, of Canandaigua, N. Y., which has been shut down for several years, is to be started up in the very near future.

A number of improvements will be made in the plant of the Brazil Clay Products Company, Brazil, Ind. Four new kilns will be built at once and additional machinery will be installed.

The employes of five brickmaking plants at Mechanicsville, N. Y., struck Saturday evening, April 9, asking for an increase of 10 per cent in their wages. A committee of the employes and the owners had a conference immediately following, and on Monday the increase was granted and the men went back to work.

The work of construction has been started on the new plant of the Horseheads (N. Y.) Brick Company. The old plant was destroyed by fire last October. The ruins of the plant are now being removed and the materials for the new building are being hauled to the grounds. The plant, when completed, will be one of the finest of its kind in the country.

Mr. Benjamin T. Rothwell announces that his interests in the Rothwell Brick and Manufacturing Company, located at Pooler, Ga., have been disposed of to Mr. George H. Baldwin, the present head of the company, and also its manager. Mr. Baldwin will, under this arrangement, have the entire control of the plant, which, while in existence only a short time, is flourishing.

Frederick B. Wood, of Tecumseh, Mich., bid in the assets of the Yoke Vitified Brick Company, of Coffeyville, Kansas, at the trustee's sale. His bid was \$31,210. Mr. Wood, the successful bidder, represents the bondholders and the Robert Binder estate. It is his intention to put the plant in operation in a short time, providing the sale is confirmed. The plant will employ about fifty men.

The plant of the Cleveland Vitified Brick Company, at Cleveland, Okla., of which Charles A. Houshour is general manager, has been reconstructed and is now turning out 100,000 brick per day. The plant is fireproof throughout, being constructed of brick, and is equipped with machinery from the shops of the American Clay Machinery Company, at Bucyrus, Ohio.

The Alpha Brick and Holding Company, of Newburgh, N. Y., has been incorporated with the Secretary of State, with a capital of \$100,000. The directors for the first year are F. W. Woodlin and John B. Bose, of Roseton, R. T. Boyd, of Brooklyn, William R. May, of New York, and William R. Pitts, of Haverstraw. The new company will operate the brick yard in Glasco, Ulster county.

The plant of the Rome (Ga.) Brick Company, which was destroyed by fire some eight months ago, has been rebuilt and the wheels started April 12. The new plant has a capacity of 100,000 brick per day, and orders have already been taken for delivery the middle of May. The officers of the company are: J. W. Rounsaville, president; E. T. McGhee, vice-president; J. Roy Rounsaville, secretary and general manager; J. A. Rounsaville, J. Glover McGhee and G. H. Harris, of Birmingham, directors.

THE ANTON VOGT KILN CONSTRUCTION COMPANY,

Down-Draft Kilns designed for all purposes.

OUR SPECIALTY

A Superior Kiln for Common Brick that is
AS CHEAP AS an updraft kiln.

Fort Smith, Arkansas.

References: Munson Bros. Brick and Tile Works, Capron, Ill.; Patton Clay Mfg. Co., Patton, Cambria Co., Pa.; Tom Hope, Pres. Ada National Bank, Ada, Okla.; Cooper and Bones Brick and Tile Co., Ada, Okla.; Alabama Brick and Tile Co., Hollywood, Ala.



Barrett's PAVING PITCH



West Fourth St., Williamsport, Pa., paved with brick in 1893, 16 years ago. Photo, 1909. Note the evenness of contour, absence of cracks, absence of ruts or vibration damage adjoining the rails, the secure grooved footing, the general cleanliness and sightliness—all this after sixteen years of hard wear.

Pitch Filled—16 Years Old

The above photograph tells the story of the efficiency of Pitch Filler in the joints of brick paving. Note the evenness of contour, the absence of cracks and the secure grooved footing due to the yielding of the pitch at the top of the joints.

The evenness of contour demonstrates that the pitch has kept water away from the foundation, so that there has been no undermining.

Cracks of course are impossible in a pitch filled pavement, because each block is completely isolated and stands on its own proper foundation.

Along the street car rails there is no damage from the vibration. If the pavement had been filled with cement grout, the hammering action of the rails would have broken the brick and cement within a few years.

There is no damage from expansion or contraction. In a pitch filled pavement every joint is an expansion joint.

In general the pavement is still in excellent condition after 16 years of hard wear.

The leading newspaper of this town says: "The city's best pavement is that on West Fourth St., laid in 1893—it has not cost the city one cent for repairs."

The pitch used in this pavement was Barrett's Paving Pitch—the same material which we are selling for this purpose to-day.

Booklets on request.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
London, Eng.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE BUILDING activity of the Puget Sound cities for the month of March was below the record of last year. The severe weather conditions of the early spring are held accountable for this state, and no doubt the month of April will be an excellent month for building operations. The total permits for March of the report of the superintendent of building for Seattle was 1,241, with a total of \$1,475,-895.00. Several new large structures are planned but no contracts are let so far. The class of buildings which are now going up indicate that the brickmakers will come in for a larger share of the building material than before. Seattle's wooden buildings have been disappearing at a remarkable rate in the last few years. According to F. W. Grant, superintendent of buildings, there have been as many old buildings torn down since the first of the year as were built in the same length of time ten years ago. Brick prices have been steady all through the month, with some higher prices in a few instances. The price for April will be \$8.00 at the yard.

The Brickmakers' Association of the State of Washington is being launched, and a circular letter sent out this week to all brickmakers and clayworkers of the state invites attendance for a meeting to be held on May 6 and 7 in Seattle. How far this new association will succeed in getting the Pacific Northwest brickmakers and clayworkers together is problematical, but we hope that it will be successful. A few years ago we had such an organization, but after one meeting nothing more was heard of it.

The Seattle Builders' Exchange and the Seattle Master Builders' Association are now collecting a permanent exhibit of practically all the materials and supplies that enter into the construction of a house, store, office building or factory. The exhibit will be open at all times, and it will be the aim of the association to make it easier for people who contem-

plate putting up buildings of any kind to see all the materials that they will need. The exhibit will give such persons a wider selection and will also benefit the sellers.

To facilitate the handling of their brick to the different cities of the Puget Sound, the Harper-Hill Brick and Tile Company has awarded to P. D. Slaon the construction of three 90-foot barges to be used at their brick yard at Harper, Wash.

The Denny-Renton Clay and Coal Company has experienced a great difficulty at their plant at Taylor in connection with the sanitary regulation of the city of Seattle, which controls the greater part of the watershed in which the plant is located. Final arrangements were made a few weeks ago, whereby the company agreed to give the city of Seattle some 500 acres of land, while the city in return would construct a sewer which will drain the water away from the watershed. Ordinances are now prepared, and the matter will be finally settled this month.

Two new brick yards which started in Oregon last fall are already making extensive improvements—The Woodburn Brick Company, of Woodburn, Ore., and the Tualatin Brick and Tile Company, of Tualatin. The latter firm is also constructing a dryer to take care of the increased demand for their brick.

The Redondo Brick Company, of Tacoma, is now contemplating the erection of a small kiln to determine what can be done with the clay for which they have built the plant.

The Northern Clay Company, of Auburn, has finished the three-story addition to their plant and are now building two more terra cotta kilns. They secured some large contracts in Spokane a few days ago.

The Everett Pottery, of Everett, which has been making flowerpots for a number of years, will discontinue the business on account of the small demand for flowerpots in this section of the country. The Denny-Renton Clay Company, which has been experimenting with flowerpots for the last year, has so far been unable to locate a suitable clay for making flowerpots.

SIWASH.

TRADE MARK "TAPESTRY" UPHELD BY UNITED STATES CIRCUIT COURT

"Sweet's Index" published in the 1910 edition an advertisement of Tapestry Brick by the Legg Brick Company, of Calhoun, Ga.

This being an infringement of our trade mark "Tapestry," registered in the United States Patent Office, we promptly brought suit, and after trial in which the whole matter was thrashed out, the Court gave us judgment in the following language:

IT IS ORDERED, ADJUDGED, AND DECREED that the respondents, Legg Brick Company and B. Mifflin Hood, and each of them, their attorneys, agents and servants, be and they are hereby enjoined and restrained from infringing upon the rights of your orator in the premises, and especially from employing or using the aforesaid trade mark "TAPESTRY" or any variation thereof in sound or appearance, either alone or in connection with other words or accompaniment, upon or in connection with bricks, or any other clay products, which are not your orator's "TAPESTRY" bricks or clay products, or in any way connected with the sale or offering for sale thereof, whether by brands, on labels, in advertisements, or in any other way whatever, of any bricks as "TAPESTRY" bricks which are not your orator's genuine "TAPESTRY" bricks.

AND IT IS FURTHER ORDERED, ADJUDGED AND DECREED THAT A PERPETUAL INJUNCTION ISSUE AGAINST THE RESPONDENTS IN ACCORDANCE WITH THIS DECREE.

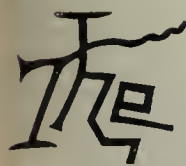
This Decision Protects Our Rights Against Infringement

BOSTON **FISKE & COMPANY, Inc.** NEW YORK

SOLE MANUFACTURERS OF "TAPESTRY" BRICK

Written for THE CLAY-WORKER.

BRICK NEWS FROM DIXIE LAND.



BRICK BUSINESS continues good at a number of points in the Central South visited by THE CLAY-WORKER's correspondent. A phenomenal business is also reported in drain tile, the farmers finding a new appreciation for this every year in the level and low altitudes of the Mississippi Valley.

The Bush Brick Company, of Nashville, has a number of contracts on hand and is busy at its yards in Nashville.

R. M. Whipple, manager of the Union City Tile Factory, was seen at his place of business. Mr. Whipple says that trade is excellent and that the plant is running behind on orders. It has recently doubled its capacity and is now building new kilns. Together with his father, now deceased, he has managed this plant for thirty years. Mr. Whipple is preparing to get out an attractive circular describing the use of drain tile on farms for general distribution.

Bransford & Sons, in the same part of Union City, Tenn., conduct a brick business and are having a large trade at the spring season.

The Rives Tile Company, at Rives, Tenn., was also visited recently. This is managed by D. H. Woody and has been for about two years. Mr. Woody has been identified with the tile trade though for a much longer time than that. Prior to coming to Rives he conducted a business at Obion, Tenn., with W. M. Fox. He states that the present market is very good and he is well located on the Illinois Central and Mobile & Ohio Railroads for making shipments.

W. M. Fox, at Obion, Tenn., is making brick and tile and has a convenient plant.

At Hickman, Ky., the place of W. A. Dodds was visited. He is in both the lumber and brick business and finds the most lively building season in Hickman for many years. He keeps five or six wagons running and does considerable business in the neighboring states of Tennessee and Missouri. He now has on hand at his brick yards 250,000 to 300,000 brick.

Having been granted its charter, the Lawrenceburg Pressed Brick Company, at Lawrenceburg, Tenn., has organized by electing the following officers: Henry Feldhaus, President; Wm. Boulie, Vice-President; John J. Orth, General Manager; Jos. B. Schade, Secretary and Treasurer. The company is capitalized at \$10,000, three-fourths of which has been subscribed. The plant expects to run out 20,000 dry pressed brick daily and will be in operation in thirty days.

The Cubbins Brick Company, at Memphis, Tenn., was recently visited by THE CLAY-WORKER's scribe. Fred W. Cubbins, the president, reports gratifying trade conditions. They manufacture dry pressed brick and sand face mud brick. The head office and yard are located on North Second street, at the Union Belt Railway line. Branch offices are located in the east end of the city at the corner of Cooper street and Central avenue. This extensive business as it now stands was started sixty-nine years ago by a pioneer of the Memphis industrial world, the father of Fred W. Cubbins. It is now the largest brick-making industry in Memphis. About fourteen years ago the son of the founder, Fred W. Cubbins, inherited the business and in 1908, Edgar O. Cubbins, a cousin, became a partner and vice-president of the company. The plant is now equipped with the most up-to-date and complete modernized improvements and has a capacity for 80,000 bricks daily. The plant and yards together cover the extensive area of fifteen acres.

The Riverside Sanitary Manufacturing Company, to make clay products, has been incorporated at Wheeling, W. Va., with \$250,000 capital stock by John P. Arbenz, A. G. Hubbard, W. W. Simpson and others.

A company has been organized at Palmer, Texas, to manufacture bricks. The capital stock is \$3,000. Luke Harrison is president; F. J. Wilson, vice-president, and J. R. Beck, secretary.

DIXIE.

For Your Steam Lines



Morehead STEAM TRAPS

embody every modern engineering requirement in steam traps. They drain steam power and heating systems and return the condensation at a high temperature direct to the boilers—hence save fuel and money. Increases the circulation and efficiency of the steam lines.

Write us your steam line conditions and our engineering department will prepare for you a definite proposal that will prove a fuel, water and time saver.

Ask for "Trap Book."

MOREHEAD MFG. CO.

Dept. 10.

Detroit, Mich.



SIX TIES \$1.00

READERS OF THE CLAY-WORKER:

SEND US THE NAME OF YOUR DEALER AND

ONE DOLLAR and we will send you *post paid*

SIX TRIPLE SERVICE TIES

Four-in-Hands or Bow Ties in any Shade.

Here are the colors: Tan, Lavender, Red, Grey, Dark Green, Light Green, Navy Blue, Light Blue, Brown, Wine, Purple and Black.

Each tie is silk-stitched, square-end finish, in one piece, and full reversible. Four-in-Hands 45 inches long, Bow Ties 35 inches long.

These ties are as "natty" in appearance as the best fifty-cent tie you can buy anywhere, and will **OUTWEAR ANY THREE FIFTY-CENT TIES.** That's the TRIPLE SERVICE. That's part of our guarantee to you.

TRIPLE SERVICE TIES are made of "EGYPTO" SILK STRIPE POPLIN, a high-class washable fabric, with wearing qualities superior to any all-silk goods. It is warranted not to wear fuzzy, and in brilliancy of dye and finish is not excelled by any other fabric produced. It is the ideal neckwear fabric.

Your money back by return mail if you are not thoroughly satisfied

Send us the name of your dealer today and One Dollar in Draft, Money Order or Cash and we will send you SIX ties of your selection, prepaid.

INDIANAPOLIS NECKWEAR CO.,
900 SAKS' BUILDING INDIANAPOLIS, IND.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—Victor repress, practically good as new. Address
CONCORDIA BRICK CO.,
4 1 c Concordia, Kans.

FOR SALE—Extra heavy steam power iron Quaker brick machine, used only four months. Price, \$135.00.
THE E. BIGLOW CO.,
4 tf d New London, Ohio.

WANTED—Position by practical and reliable man who understands all details of machinery and any kind of shale or clay from bank to cars. Best of references.
C. W. FOCHT,
4 1 c 221 N. 68th St., East Lake, Ala.

WANTED—Position as manager or superintendent of brick works, nine years experience in both manufacturing and executive ends of business; paving, building and face brick. Address BOX 4, E. C.
4 1 cm Care Clay-Worker.

FOR SALE—Brick cutting wires, nine to twenty-four inches. Samples and price sent on application.
J. M. WILLISON,
654 Minerva St., East Liverpool, O.
4 1 cm

FOR SALE—One Monarch brick machine, one mold sander, Potts disintegrator, one hoisting drum, wheelbarrows, trucks, grate bars, doors, line shafting and pulleys. Address BOX 4, W. F. K.,
4 1 d Care Clay-Worker.

TEN THOUSAND DOLLARS will buy a \$25,000 brick plant. Only one in Oklahoma town of 15,000. In running order; 40,000 capacity; railroad switch; positively a bargain. Address
BOX 4, W. A. D.,
4 1 lp Care Clay-Worker.

FOR SALE.

One Monarch No. 6 soft mud machine; one Horton sander; one five-leaf dump table; one wooden water tank, capacity 225 to 250 bbls. All in good repair. Will be sold cheap. Address,
A. C. OCHS,
3 2 d Springfield, Minn.

WANTED.

Situation as manager or superintendent of plant needing the services of an A1 man, 30 years' experience in manufacture of all kinds of brick, ornamental, face, stiff-mud, soft-mud and vitrified brick; understand all classes of machinery; burn in any kind of kilns; use wood, coal, gas or oil for fuel; can make plans and build complete plant from ground up; handle any kind of labor; know what a day's work is and how to get it done; am at present manager of one of the largest concerns in the country; satisfactory reasons furnished for wanting to change; will give trial of 60 to 90 days before making contract. Address
BOX 4, W. D.,
4 1 d Care Clay-Worker.

WANTED—Two dry press setters, one dry press sorter and one burner.
LONSDALE FACE BRICK CO.,
Knoxville, Tenn.

SALE OR TRADE—Full equipment for soft-mud brick and tile, 25 h. p. Atlas engine, 40 h. p. boiler; sell cheap or trade for automobile.
H. L. BURR,
4 1 cm Newcastle, Ind.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CONTRACTING CO.,
2 tf d Zanesville, Ohio.

FOR SALE—Brick yard just outside corporation and within a few rods of railroad. Best of clay. Buildings and machinery nearly new. Terms reasonable. Address BOX 63,
4 tf 1 pm Hebron, Neb.

FOR SALE—A "Mammoth" brick machine and 12-foot pug mill, E. M. Freese & Co. make, \$300. A Simpson 4-mold dry press, \$550; a friction hoist, \$75; 2-roll disintegrator, \$75; Miller hand fire brick repress, \$25. Address, PLATT BROS.,
3 tf d Van Meter, Iowa.

FOR SALE.

Potts machine, disintegrator and sander with molds. New 20-inch belting, feed water heaters, pumps, cast iron yokes for Barron cars and 125 H. P. Buckeye engine. Address, Box 2—H. D.
2 3 d Care Clay-Worker.

SUPERINTENDENT WANTED.

For a vitrified shale paving block and front brick plant, capacity 50,000 per day; natural gas fuel. Healthful location, good neighborhood. References as to ability and total abstinence required. Address,
ELISHA K. KANE,
3 2 d Kushequa, Pa.

FOR SALE—One 24-inch by 60-inch, 4-15-16-inch bore, band wheel with rigid pillow blocks, with collar coupling and 15 feet of 4-15-16 shafting complete.

One complete Dunlap Perfection Screen 3 feet by 22 feet.

One Bensing Table, complete for cutting brick 2 7/8 inches.

One Bensing Table (new) for cutting paving block, 4 1/8-inch cut.

The BARBER ASPHALT PAVING CO.,
33 d Des Moines, Iowa.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address T. A. RANDALL & CO.,
Indianapolis, Ind.

WANTED.

Kiln burner for sewer pipe who understands burning with fuel oil. Address K. C.,
4 1 d Care Clay-Worker.

FOR SALE.

Fifteen thousand white pine pallets, racks, shafting, belting, etc. Address,
J. H. MCGREGOR BRICK CO.,
2 3 d Bloomington, Ill.

FOR SALE—Drake stiff mud machine, 30,000 capacity. Fate hand side cut table. Nicol Burr engine 10 by 24. Price \$300. A snap.
J. H. FRANCIS,
409 So. Garfield,
3 3 c Peoria, Ill.

WANTED—Position as superintendent or assistant where an all around man is needed in a dry press or soft mud yard and where merit will be rewarded. Address, Box 3—G,
3 1 c Care Clay-Worker.

AN EXCELLENT OPPORTUNITY for an experienced brickmaker with small capital to start a brick and tile plant. Some local capital and the best of clay to be had. New territory. Address, Box 3—R. F. D.,
3 1 d Care Clay-Worker.

\$4,000 SALARY

and 10 per cent. dividends to a thoroughly competent fire brick manufacturer who can control \$60,000 to \$90,000 cash in purchasing successful plants. Address,
F. M. SAVAGE,
2 3 cm Joliet, Ill.

WANTED—Situation by an all around stoneware potter. Can turn, make molds mix glaze and burn kiln. Have worked on chemical ware, laundry tubs and sinks and other large ware. References furnished. Address, Box 3—Potter,
3 1 dm Care Clay-Worker.

**SWITCHES FOR SALE.**

Right and left-hand one, two and three way switches of various gauges, radius and weight rails at special prices.
THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

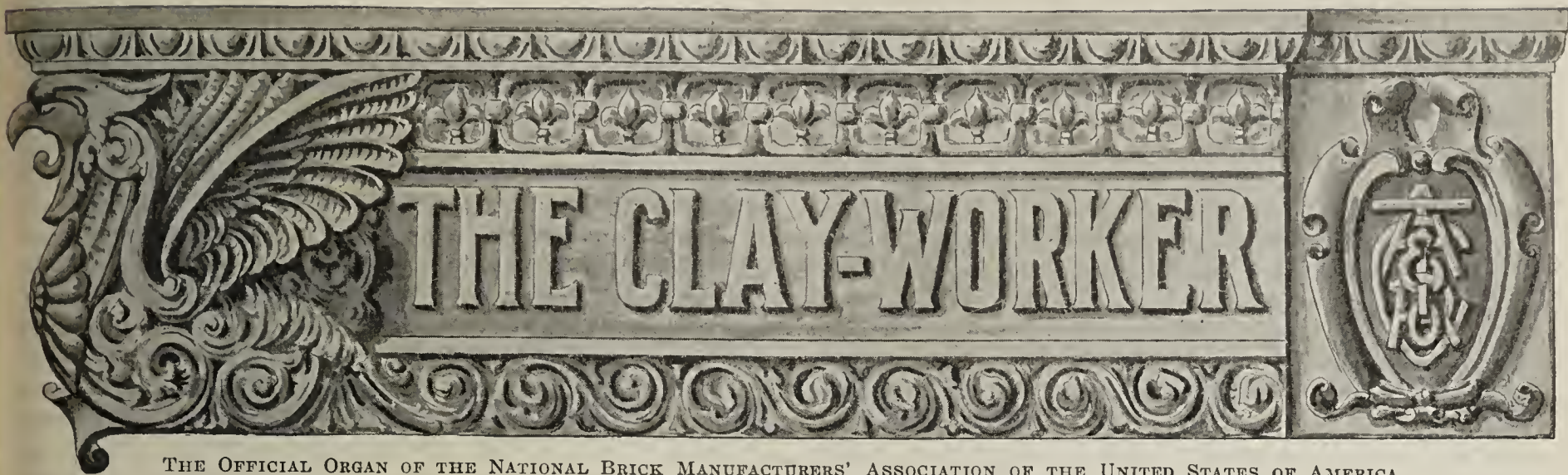
SHUMAKER PATENT DOWN DRAFT KILNS

Burns 99 Percent Hard Bricks

Old Kilns Remodeled

Plans and Yard Rights Cheap

J. H. Shumaker & Co.,
Hyndman, Pa.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LIII.

INDIANAPOLIS, IND., MAY, 1910.

No. 5.

Written for THE CLAY-WORKER.

DECORATIVE TILE IN HOME BUILDING

BY CHARLES JAMES FOX, PH. D.

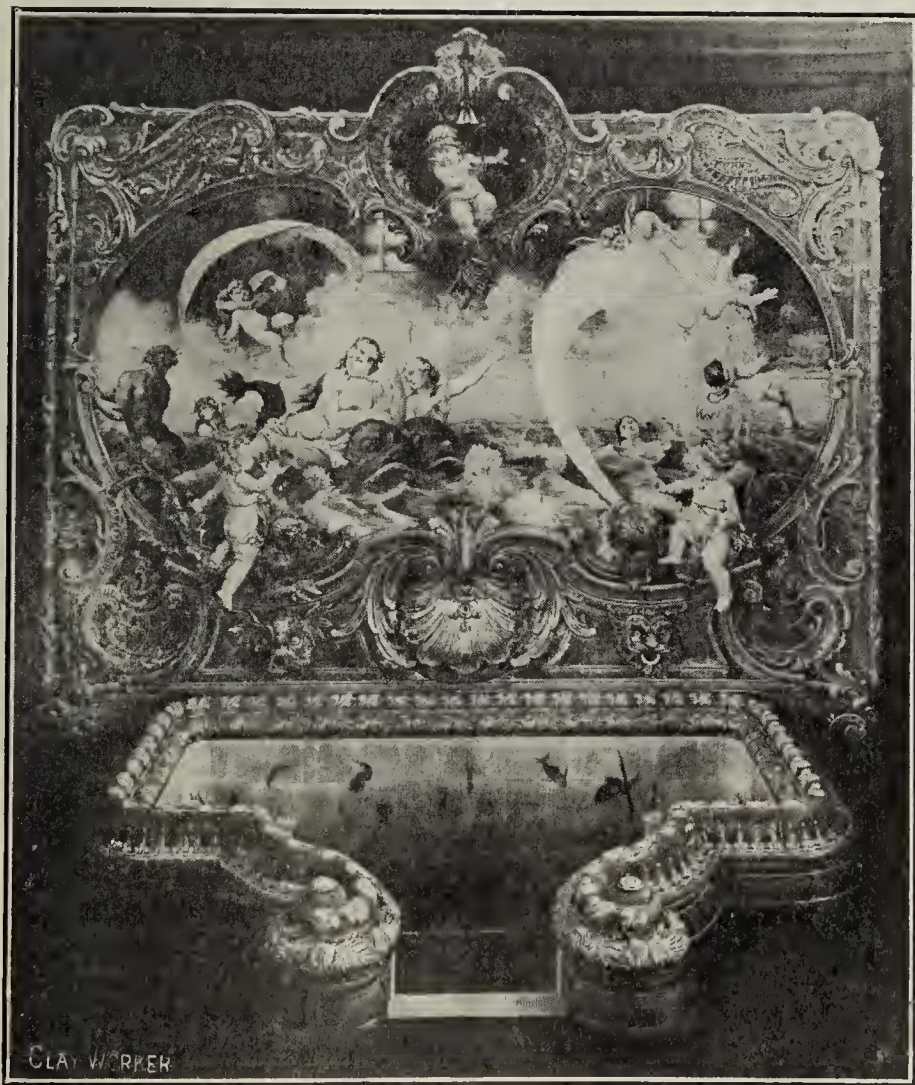
THE APPEARANCE of the floors and walls is an important feature in the interior decoration of the home. Costly carpets and rugs, rich wall paper, hardwood inlaid floors, panelled oak, cherry and mahogany wainscoting are some of the coverings used to make the floors and walls attractive and ornamental. One of the most recent materials to be employed in American domestic architecture as a floor covering and wall facing is the burned clay tile. It has been used for centuries in England, France, Germany and other European countries where inorganic and fireproof materials are given preference over wood, and where the ordinary home is built for generations rather than for years.

Twenty-five years ago, tile was virtually unknown in this country, where wood was the usual building material. With the advent of the modern bathroom, the clay tile made its first appearance in America as a covering for its floor and walls, which were being constantly splashed with water. The water-proof and germ-proof qualities of tiling, together with the facility with which a tiled floor can be cleaned, made it especially appropriate as a sanitary floor covering. The tiled bathroom, however, was for a long time regarded as an expensive luxury to be enjoyed only by the wealthy who were able to pay for its sanitary and decorative qualities. Today a tiled bathroom is looked upon as such a necessity as to be

required by law in the building ordinances relating to hotels, tenement houses and other structures of a semi-public character in many of our largest cities.

It is a strange coincidence that the most decorative of all floor and wall coverings should have made its first appearance in this country in a room where decoration is not at all essential. Yet, however unintentional it may have been, the modern bathroom, with its bright open plumbing fixtures, its porcelain tub and its tiled floor and wall has become one of

the most attractive rooms in the house. The bathroom tiling was at first usually white, but as the colored glazed and decorative tile is just as sanitary, just as water-proof and just as durable as the plain white, it was not long before the American architect followed the example of his European confrere and took advantage of the ornamental qualities of tiling. The walls of the bathroom are today often covered with sea-green and other colored glazed tiling and the floors are laid in ornamental designs executed in ceramic mosaic. The colored tile emphasizes and shows off to advantage the extreme whiteness of the bath tub and other plumbing fixtures and by a judicious use of wall paneling and floor design the clever architect can correct, wherever necessary, the



Ornamental Tiling of German Bathroom.

faulty appearance or lack of symmetry in a bathroom which is too small, too narrow or otherwise out of proportion with the rest of the house.

The durable, sanitary and artistic properties of the burned clay products were each made evident in the bathroom tiling, and each in turn led to the adoption of this permanent floor and wall covering for other parts of the house. The dura-

bility, beauty and substantial appearance of tiling naturally suggested it to the architect or home builder as an appropriate covering for the floor and wainscoting of the vestibule. The clay, out of which the tiles are made, can be burned so hard that the steel nails of the shoe, so destructive of less permanent flooring materials, can not scratch it any more than the steel knife scratches the ordinary dinner plate. The knocks and blows incident to concentrated traffic through the vestibule and to the carrying in and out of baggage and furniture, which soon scratch and mar a vestibule covered with less durable material, leave no trace upon the floor and wainscoting covered with the hard burned clay tile. The street dirt that is carried into the vestibule on the shoes can be easily removed by simply flushing off the floor with a pail full of water. The tiled vestibule is therefore easy to keep clean and unless it is entirely neglected it should always have that neat, tidy appearance which is so essential to that part of the house

part of the house. Its floor is subjected to the most trying exposure to the elements. Part of the time it is covered with rain or snow; again it is exposed to the baking rays of the sun; and at all times when the house is occupied it is covered with more or less street dirt.

Unless it is slanted so that the rain or snow will run off it and unless it is protected by paint and other covering, wood can not withstand this treatment without soon showing signs of wear. Consequently about the first part of a new house which betrays evidences of age and decay is the wooden porch floor. And yet, like the vestibule, the appearance of the porch is all the more important because it is seen from the street and is unconsciously scrutinized by every visitor while waiting for the door bell to be answered. A tile porch floor is about the only one which is at once decorative and durable. If properly laid in hard Portland cement, it will outlast the building in which it is placed. It is very easy to clean and



Tiled Porch—A Beautiful Decorative Feature of a Suburban Residence.

which first meets the eye of the visitor, and upon the appearance of which the stranger may base his entire judgment of the character of the interior of the house and of its inmates.

The plastic clay material can be pressed in dies of almost any shape, and by a selection of different clays and by the addition of metallic oxides, tiles can be burned in almost every color, shade or tint. With the consequent unlimited range of form and color of the individual pieces, the decorative possibilities of the tile floor and wall are limited only by the artistic conceptions of the architect or decorator. Many tiled floors of the present day present startling examples of bad taste, both in color scheme and design, but this is the fault of the decorator or home builder and not of the material itself.

The success of tiling on the floor of the vestibule naturally suggested its use as a covering for the porch. In suburban residences, especially, where outdoor living is an important feature, the porch is a much used and also a much abused

with the most superficial attention it can always be kept attractive in appearance. Owing to the danger of shutting off too much light from the rooms on the first floor it is often necessary to make the porch rather narrow. This narrowness in appearance is emphasized by the cracks between the boards of the wooden floor, but can be easily remedied by the selection of a suitably designed border or panel, worked out in tile or ceramic mosaics.

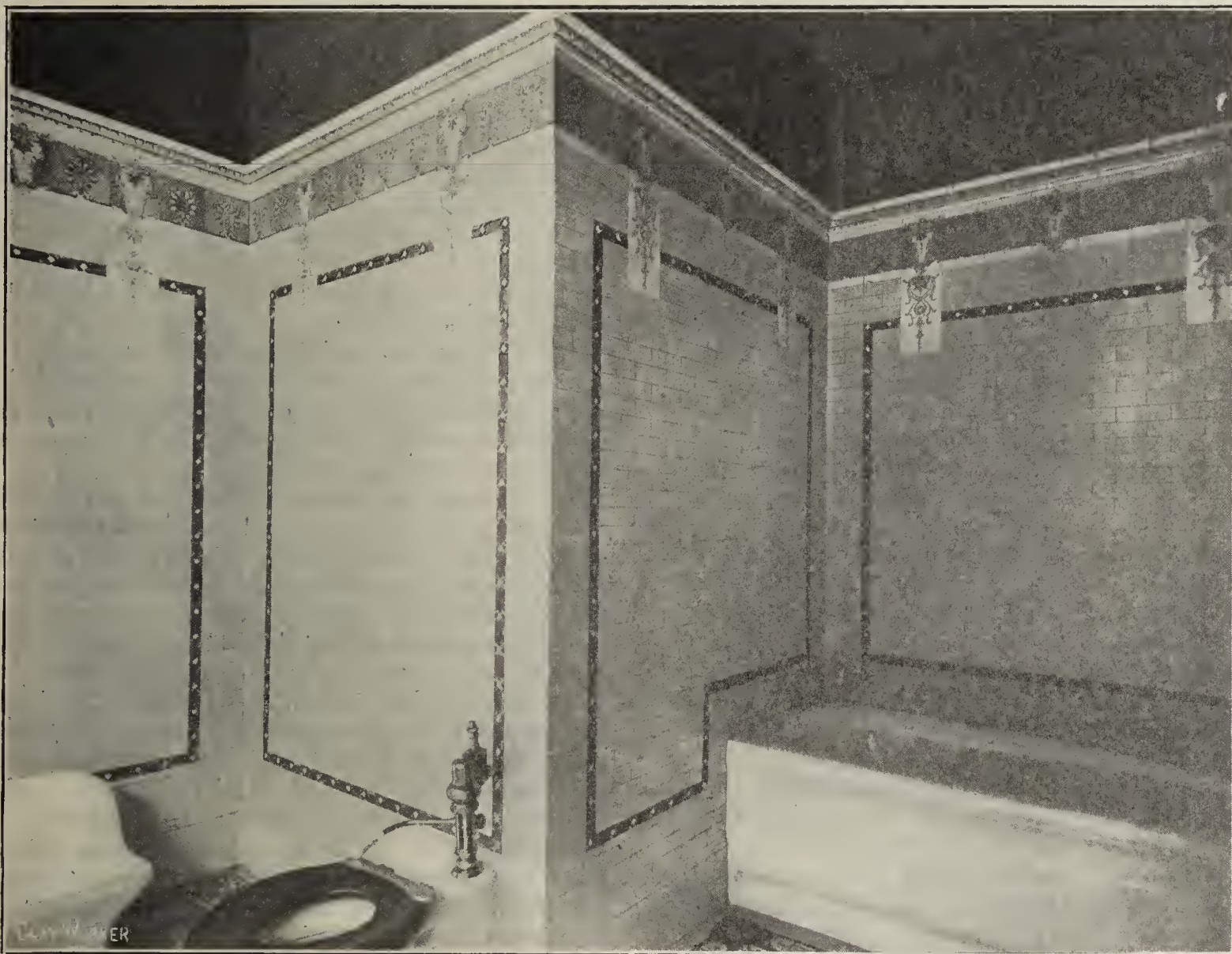
In European countries, tile is used very extensively in the reception hall. This custom is now being imitated in American domestic architecture, and today many of our finest residences have a tiled or ceramic mosaic floor and wainscoting in the reception hall in place of the hardwood polished floors and carved wooden wainscoting or wall paper. A tiled hallway can be made substantial, rich and decorative. Tiling does not have to be oiled or polished, and it has not that disagreeable and dangerous slipperiness so characteristic of the

polished hardwood floor. Europeans justly condemn the American idea of polishing the floor to such an extent that even the rugs will slide upon it. Many serious accidents, especially to children, have resulted from the slippery polished floors in the hallways of many of our finest residences. Tiled wainscoting in the hallway and on the stairs can not be injured by soiled hands, baggage, furniture or other things which so often deface the most expensive panelled or paper wainscoting.

The sanitary considerations which led originally to the adoption of tiling as an ideal floor and wall covering for the bathroom apply with equal if not greater force to the kitchen. In the most careful culinary operations, much grease and other organic matter is inevitably spattered upon the floor and walls. From the surface of the burned clay tile, this can be removed as easily and as thoroughly as from an ordinary platter. Consequently it is a small matter to keep a tiled

corners and at the union of the floor and walls, all angles and corners which become the receptacles of dirt or organic matter are abolished. The tiled kitchen can be quite easily and safely rinsed out with a few buckets of water. In comparison with the laborious scrubbing of wooden floors, this is a great saving of domestic labor. The tiled kitchen has the further advantage of inducing the domestic servants unconsciously to live up to the cleanliness of their surroundings.

There exists a great deal of misapprehension regarding the cost of tiling. As a rough estimate, floor tiling costs from 50 to 60 cents per square foot and wall tiling from 60 to 70 cents. In considering this initial expense, which is somewhat greater than that of floor and wall coverings, it should be remembered that a tile floor or wall never has to be oiled, painted, papered or covered with carpets, repaired or replaced. It can not be stained and it is absolutely fireproof. It lasts virtually forever. There are today in Europe many tile floors



Bathroom With Tiled Floor and Walls.

kitchen in as sanitary a condition as a modern hospital. If, however, the floor is covered with wood, much of the organic matter that falls upon it is absorbed by the boards or passes into the cracks between them. Here it decomposes and breeds germs of all kinds from the simple "anaerobic" germ of decay, so offensive to the sense of smell by its peculiar musty odor, to other disease germs positively dangerous to human life. By covering the wooden floors with a superficial and semi-waterproof material, the work of keeping the kitchen looking clean is much lessened, but much dirt and moisture finds its way under this covering, where it remains for months or years until the covering is replaced because it has worn out. By merely secreting or covering up this dirt, these superficial waterproof coverings really add to the unsanitary condition of the kitchen. The tile floor is waterproof, germ-proof and insect proof. Rats or mice can not make any impression upon it. By using rounded "cove base" tile in the

that are hundreds of years old and yet are in an excellent state of preservation. Although tiling is somewhat more expensive than other less durable and less sanitary materials, the constant increase in its use in this country is but one of the many indications that American architecture, like that of all older countries, is now characterized by permanence and durability of building operations. By the general use of tiling the American home builder does so much to add to the healthfulness and permanence of the house in which he lives that the slight increase in the initial cost of the tile floor and wall should be looked upon as a good investment and a real economy.

If you can't use system without making it into red tape, get somebody else to use it or else stick to your old-fashioned methods, because red tape is about the most entangling and expensive thing that one can tie up his business with.



Written for THE CLAY-WORKER.

CONTROLLING THE BURNING.

(Sixth Paper.)

ECONOMY IN BURNING results also from a proper use of controlling instruments. We would use a recording pyrometer in the top of the kiln, which will not only keep the burners awake and alert, but also shows quickly any change in the kiln temperature and enables the burner to control it and save loss in fuel or damage to the ware.

Measuring the settle in many instances is a valuable guide in burning, but it does not give information quickly. It is only after the settle has ceased or slackened or become excessive that the burner discovers the fact, and then he must regain the lost ground at some fuel cost, or prevent further damage. The pyrometer gives immediate warning.

The settle is valuable in determining the finish of the burn, and when properly recorded shows how carefully the work has been done.

Cones in the bottom of the kiln are of some value in following the heat in that part of the kiln.

In addition to pyrometers we would use recording draft gauges. Their first service will be to determine the best draft at each stage of the burning, and subsequently they will enable the burner to maintain this draft.

It is not our intention to discuss the chemistry of burning, except to call attention to the loss which may result from imperfect combustion.

Referring again to our illustration of a boiler fireman. How easy it is for some firemen to keep up steam and how little fuel they use. They accomplish this by getting the value out of the fuel, and we will have the same difference in kiln firing if we could only find it out. Loss comes in two ways: First, by excessive air, which must be heated up, and from which we get no return in a periodic kiln unless we use the products of combustion for drying, which is done on very few yards. In a continuous kiln, excess air does not cause loss, since we make use of practically all the heat in the waste gases.

Insufficient air is also a serious cause of loss in fuel.

"Tassels" of flame from chimney tops are not the tails of long flames from the furnaces, but more likely to be the flaming of unburned gases as they come in contact with air leaking through the stack walls or at the stack top. There are published tables showing the fuel loss for different percentages of air admitted to the furnaces, or rather to the percentage of carbonic acid in the gas, which is the best indicator of the combustion and the value being obtained from the fuel. Every manufacturer should determine whether the combustion in the kiln is economical, and if not, take steps to make it so.

For this purpose an Orsat gas analysis apparatus is especially valuable.

What is the most economical kiln? A difficult question to answer in a general way. Given the conditions and the answer is easier.

The up-draft kiln in many situations is quite economical. Its sanitation is the best possible.

It is of very large capacity and economical in filling and unloading.

The fires are applied direct to the ware, and the heat loss is relatively small.

Where the clay will stand rapid burning—following up the water-smoking closely by the burning, the fuel consumption per thousand is less than any other type of kiln except the continuous kiln. It is essentially a common brick kiln, and one in which the percentage of soft bricks is relatively large. It burns less uniformly than any other type. Its low first cost, sanitation, economy in fuel, and large capacity recommend it for common bricks, and this type of kiln or some form of continuous kiln should be used for such bricks, in preference to a down-draft kiln.

The down-draft kiln is more widely used in this country than any other kiln.

Its chief feature is uniformity of burning. The radiation loss as the kilns are usually built is high and likewise the fuel consumption, but it turns out more high-grade ware than any other kiln.

The excellence of our fuel and its cheapness has been a strong factor in developing and maintaining the down-draft kiln. It is the universal kiln in burning sewer pipe, and until recently the only satisfactory kiln for paving brick, and principally used for tile, fireproofing and fire bricks.

The continuous kiln is now attracting attention in paving bricks, building bricks and tile, and it bids fair to replace the down-draft kiln in these lines because of the greater economy in fuel.

It is strange that the continuous kiln has not been taken up for fire bricks. It seems to us to offer especial advantages for this ware.

The continuous kiln is rapidly coming into use and the statements that there is a saving of 50 to 60 per cent in the fuel are verified in practice. How could it be otherwise? The heat from the cooling bricks requires little additional fuel to bring it to the required temperature and when passed the burning chambers, the heat in the waste gases is used for preliminary heating up. The walls are heavy and filled with earth, which reduces radiation loss to a minimum.

The first cost of the kiln is appalling to many, but as a matter of fact, the cost is scarcely greater than that of a battery of down-draft kilns of the same capacity, if properly constructed, and if not properly constructed, the down-draft kiln is expensive at any price. It is the necessity of investing

such a large sum at once and without opportunity of trying out the kiln that delays the development of the kiln.

It is coming—it is already here to stay, and progressive manufacturers must give it due consideration if they remain progressive.

The continuous kiln has little or no waste heat which can be used in drying. Some kiln builders will not permit heat to be taken from the kiln for this purpose. They say all the heat in the kiln is needed for its operation, and, as a fact, it is all used, but it is also true that heat may be taken from the kiln for outside purpose.

When so taken, it must be replaced by additional fuel burned in the kiln and the question arises whether the kiln is not as economical for generating heat for drying as any other method. We think not. The greatest economy comes in generating the heat as near the point of use as possible. It only pays to transport the heat some distance when it is a waste product.

Regarding the waste heat available on a yard, let us say, for a capacity of 50,000 bricks per day weighing 6 pounds and burned to 2,000° F., or about cone 03.

$50,000 \times 6 \times 2,000 \times .2$ (specific heat) = 120,000,000 B. T. U. We can not get all this heat because of the loss in radiation and because it has no value below probably 200° F. in the kiln, but the kiln walls will, in some measure, offset this loss.

This heat is equivalent to 8,670 pounds of coal. Any manufacturer who makes no use of this heat is allowing over four tons of coal to go to waste every day.

If it takes one-eighth of a ton of coal to dry 1,000 bricks, as figured by Minton, the above waste heat will thoroughly dry only 34,000 bricks, which shows that there is not enough waste heat to thoroughly dry the ware. At least it may be safely stated that the manufacturer can not afford to lose any of it.

If 200 horse-power is required to run the plant, we have from the exhaust steam:

$200 \times 30 \times 1,100 = 66,000,000$ B. T. U.

Or, 2,350 pounds of coal, which would dry 18,800 bricks. Where a continuous kiln is used, it seems to us better to use the heat in the kiln for the work of burning, and dry the bricks either with steam, both exhaust and live, or combine the exhaust steam heat with a direct radiation dryer.

The round down-draft is fairly good if the plant is laid out for such kilns, and there is room to make a satisfactory arrangement.

The up-draft kiln lends itself to the best yard arrangement, but the rectangular down-draft and semi-continuous kiln are nearly as adaptable.

In any of these kilns the aim should be to have the material always moving from the clay pit towards the car in which the ware is to be shipped.

The continuous kiln is the most difficult of all to get good yard arrangement.

There is another consideration which should have influence in deciding what type of kiln should be adopted. A continuous kiln must be unloaded as fast as burned to keep the kiln in operation, while with periodic kilns such is often not the case.

The latter, therefore, will permit the loading to cars direct from the kiln in greater degree than the continuous kiln.

Each handling costs about 25 cents per thousand and any bricks taken from kiln to cars will save the manufacturer this amount. (To be continued.)

Brazil has taken pattern from us and established a number of manual training schools. Some day there will be real trade schools everywhere, so that no healthy young man will need to grow up without proper training in some craft. And the sooner that day comes the better.

SOME FACTS ABOUT FLOODS.

The United States Geological Survey has been making a study of floods and the results of this study, or studies, are given in Bulletins 88, 92, 96, 147 and 162 of the Water Supply papers.

In Water Supply paper 88, G. B. Hollister and M. O. Leighton discuss the subject of the Passaic flood in 1902. In paper 92 Mr. Leighton discusses the Passaic flood in 1904, and other papers discuss floods in the United States in 1903, 1904 and 1905. Copies of these papers can be had by request from the Survey at Washington, D. C.

In a recent press bulletin on these papers, two very interesting things are talked of. One is the recent flood in Paris, the other is the damage to the United States annually by floods. It is estimated that the annual damage by floods in the United States is one hundred million dollars. It is considered too early yet to inaugurate a systematic prevention of these floods, but it is easy to see that finally every consideration will take on the form of storage reservoirs and irrigation projects centering around the head-waters and extensive drainage sheds.

One may talk forestry conservation all he pleases, about saving the country from floods, but its influence is necessarily limited and the only absolutely sure safeguard will consist in providing means to catch and store the abnormal fall of water to prevent floods at the time, and to increase its value for use during a possible shortage in dry seasons. It will probably take some years, but undoubtedly this will be done in some parts of the country.

In regard to the Paris flood, it seems that the newspapers materially exaggerated the extent of the damage done. The Seine is the fourth river in size in France. Its drainage basin is 30,370 square miles, slightly larger than the Susquehanna, or the Sacramento. Its discharge, at the height of the recent flood, is reported to have been 83,500 second feet. This is less than one-eighth of the flood of the Susquehanna in 1889 and less than one-fifth of the flow of the Potomac at Washington in the same year, so really, it was not much of a flood after all. Its alarming features came from the fact that it overflowed Paris. The Seine flows through Paris, through a narrow stone-walled channel, and is spanned by many bridges, and it was the constriction of the flood-water in this narrow channel that caused it to overflow such a large territory. It is said that none of the bridges were greatly damaged, and that generally the underground work of sewerage and tunnels withstood the water well, and that the actual damage to public works was really not great. There was, of course, great damage to personal property and things of that kind. A number of projects are now on foot to prevent future occurrences of this kind.

IN COMPETITION WITH KAISER WILLIAM.

A number of German pottery manufacturers are preparing a protest against the competition offered to them by the kaiser in his capacity as proprietor of the Kadener Pottery Works. As is well known, the kaiser pushes the sale of his own pottery products with marvelous energy, taking orders from his friends and even pressing his wares on wealthy Germans who desire to attract his attention.

Other pottery manufacturers have been hit hard by the kaiser's competition, and they want to lay their grievances before the government. They have decided to keep the matter as quiet as possible in order not to arouse the furious resentment of the emperor, and they will lay their grievances confidentially before the Imperial Ministry of the Interior, in the hopes that some steps may be taken to induce the kaiser to abstain from competing as a manufacturer and tradesman with his own subjects.

REMINISCENCES OF TILE DRAINAGE AND TILE MACHINES.

Written for The Clay-Worker by George S. Tiffany.

IT WAS in the year of 1858 that two young men, former schoolmates, were in pleasant conversation relating school boy experiences and incidents which had occurred later in life. Legrand had traveled with a corps of engineers and had recently made experiments with silicate of potash—soluble glass—with the hopes of making an impervious roofing material, for which he intended to obtain a patent. He showed specimens of wood and leather, wood glass and other combinations firmly united by soluble glass and which long afterward were reported as the discoveries of a noted Frenchman.

George had worked two years on his father's farm, which was so wet that he would frequently mount a big ox and guide him so as to drive the cattle to the barnyard toward evenings; had been receiving clerk for the Western Transportation Company in Chicago two years and was then giving his time to the study of law. The following conversation ensued:

George: "Well, I think I might take out a patent if I should try."

Legrand: "What for, George?"

George: "For a drain tile machine."

Legrand: "Let me see it."

George opened a law book on the flyleaf of which were sketches which required explanation.

George: "That circle represents a vertical pug mill. These two spiral scrawls running across the circle are two augers which, turning toward each other, draw the clay between them and force it forward between cores on the ends of the augers and a die plate and it issues in two streams of pipe."

Legrand was interested and began to use his pencil. He estimated the number of cubic inches in a tile, the number of cubic inches an auger of a given size would force forward at a revolution and the number of tile the machine would make in ten hours. Finally, looking up, he said:

"George, I would advise you to build that machine and get it patented."

George: "Nonsense, Legrand, it's too simple."

Legrand: "Too simple? That is the beauty of it; any fool can make a complicated machine."

George: "That reminds me of an incident in a biography. The writer said, 'When I was a small boy an old sailor who had been a friend of my father's called on my mother, who was a widow, and noticing my pranks, said: 'Madam, I have made up my mind what that boy will be.' 'I would like to have your opinion,' replied my mother. 'Well, he will either be something or a d—d great nothing.' It's about the same with complicated machines. You say, Legrand, that my plan is simple. I think I would be simple, too, if I should try to develop it. There is not a drain tile factory in the state. Sword Bros., of Adrian, have a small kiln suitable for a farmer's smokehouse, and a small, wooden vertical machine, the plunger of which is operated by a windlass, which is worked by a lever having pawls that engage the teeth of a sprocket wheel on the shaft of the windlass. A man works the lever, another receives the tile on a mandrel, cuts it off, carries it and puts it down very gently on the ground.'"

Legrand: "But your machine will make better and cheaper tile."

George: "That may be true, but what would I do with them?"

Legrand: "Surely, the farmers need them."

George: "True, but needed and wanted are two differ-

ent conditions. One of the best farmers in Lenawee county has recently made a long drain, but he did not buy drain tile of Sword Bros., who were less than four miles away. He laid poles along the sides of the bottom of the trench. Across them he laid blocks of wood split from short cuts of logs, covered them with straw and filled the trench with earth. Many have made drains by simply putting brush in the bottom of the trench and covering with straw and earth. Whatever they use and however they use it, they are satisfied and are enthusiastic over the results."

Legrand: "But the demand will increase if the tile are made."

George: "I think so; but one of the most noted scientists does not. He said, 'The system of underdrainage lately introduced in England will cause barrenness. The ammoniacal salts will filter through and be carried off into the valley below.'"

Legrand: "Do you believe that, George?"

George: "I do not, but a good many will believe it and talk against the system. Certainly it can not be true, for if it were, lands underlaid with gravel would soon become barren, while we know they retain fertilizer and are very productive. Most people are conservative and they will quote the statement with satisfaction. They are not looking for anything better than that which they now have. This couplet expresses the thought of our civilization:

'Follow your father, good son,
And do as your father has done.'

If any young fellow thinks he can do better, they will say with a sigh, 'Poor fellow, he has lost some of his buttons,' and if he should make an effort and fail, they will laugh at him and treat him as they did poor Darius Green with his flying machine. I drop a tear for Darius, but he may yet be hailed as the pioneer in the science of aeronautics. The way to success is strewn with the wrecks of fruitless trials. Better to have made a few of these than never to have done anything. Hurrah for Darius!

"It may, however, be more conducive to peace of mind and an economical use of money simply to 'follow the way of the calf.'"

But George changed his mind, or improved the old one considerably. He decided to follow Legrand's advice. By what process of thought or what motives influenced him to this decision can not, at this day, be determined. He has often been heard to say that if he had known how little he did know about the difficulties of clayworking, he never would have had anything to do with clayworking machinery. He may have experienced some of Longfellow's enthusiasm:

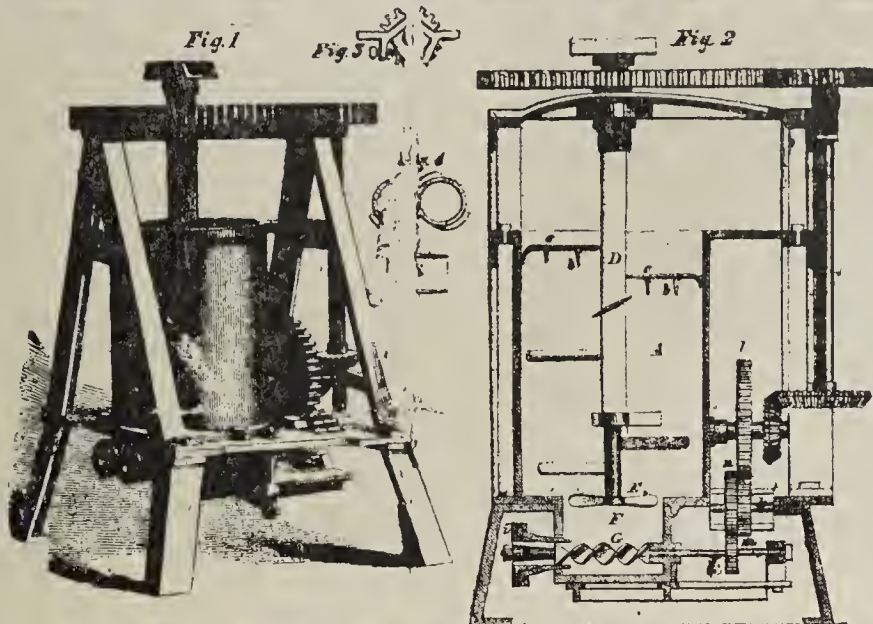
"All the soul in rapt suspension
With the fever of invention
With the rapture of creating."

Or the gentle, lovable ambition of Burns:

"That I, for good old Scotland's sake
Some useful thing or book might make
Or least might sing a song."

But a plausible solution was expressed by a lunatic. A gentleman visiting an asylum had been told not to say anything in opposition to the whims of the patients and to agree with them in whatever they might say. Seeing a fine looking old gentleman astride a cane, cavorting and prancing, he said: "That is a fine horse you have there, sir." The lunatic

TIFFANY'S



DRAIN TILE MACHINE.

PATENTED FEBRUARY 26, 1861.

The above Machine is made of cast iron, except the cylinder of the grinding mill, which consists of staves one and a half inch thick, held in position by cast iron circles as represented. The machine is made so strong that there is but little liability of its breaking or getting out of order. No mechanical skill is required to set the machine, as it is only necessary to bolt it to sills imbedded in the earth, and any person of good judgement can operate it successfully:

It is Portable, weighing about 1600 lbs.

It grinds the clay and makes the tile at the same time. It is only necessary to put the moistened clay in the cylinder and put the machine in operation, when perfectly moulded tiles will issue from the funnels. It works very stiff clay, and the tiles are so compact that they can be handled without liability to injury.

Two horses are required to operate the machine when the augurs are geared to run at their highest velocity, but the motion may be decreased so that one horse will be sufficient. Of course the amount of tiles made per day, depends upon the velocity of the augurs.

IT MAKES PERFECT TILE.

There are no air cells nor holes made by confined air escaping, such as are found in tiles made by other machines. On account of the compactness of the tiles made by this machine, but very few crack in the kiln.

TESTIMONIALS.

We have made over 175,000 tiles with one of Tiffany's Tile Machines, and we take pleasure in stating that in many respects it is superior to any machine we have known. With two horses it is capable of making, from 8,000 to 10,000 tiles of two inch bore per day. The machine works very stiff clay, and the tiles are so firm and compact that they are more easily handled, keep their shape, and bake better, than tiles made by any other machine with which we are acquainted.

H. & P. SWORD Brick and Tilemakers, Adrian Mich.

This machine took the first premium at the Michigan State Fair of 1860. The committee say that the "tile are well made, and the machine works well."

Price of Machines for making sizes of three inch bore and less, including rack and cut-off \$200, for all sizes of six inch bore or less with rack &c, \$250.

Direct all orders for machines and applications for rights in the State of Michigan to H. BREWER, Tecumseh Mich.; in the States of Ohio, Indiana, and Missouri to V. SPALDING, Palmyra, Mich.; in all the remaining States and Territories of the United States to

GEORGE S. TIFFANY,

Palmyra, Lenawee Co., Mich.

Expositor Station Print Adrian Mich.

stopped, looked at him scornfully and said: "This is not a horse; don't you know the difference between a horse and a hobby?" "I do not know that I do," said the astonished man. "Why you can get off a horse, but you can't get off a hobby," said the lunatic. George was astride his hobby. He walked to Adrian, six miles away; went into Buck's hardware store and tin shop, had a model tile machine made and carried it home with him the same day. The accompanying drawing is a section of the model and requires but little explanation.

The box and funnel were of sheet brass; the shaft D was of iron; the spiral flanges C, a strip of sheet copper soldered to the shaft and the shaft was turned by the crank B.

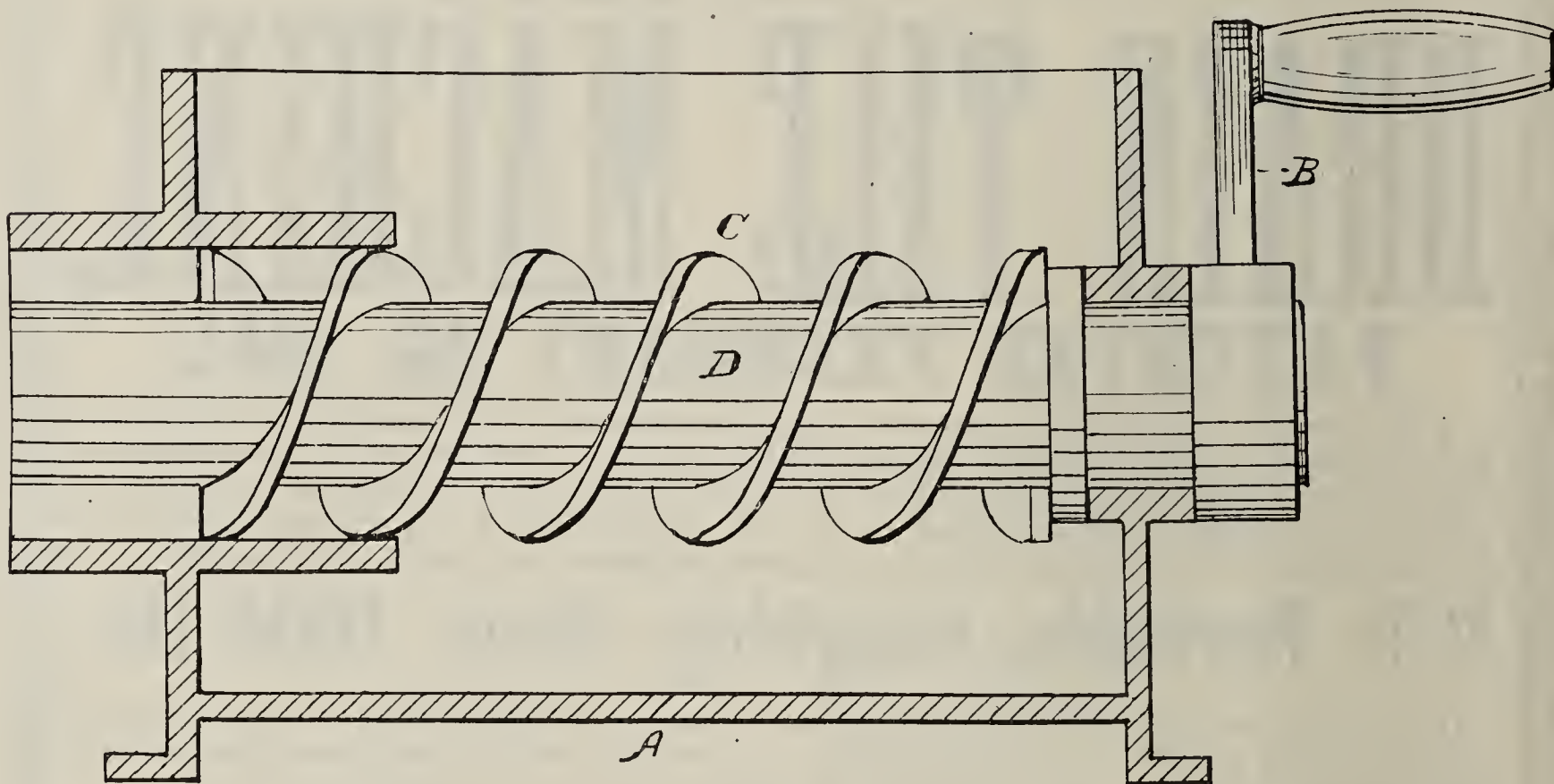
The next morning he got some clay and made some tile of one-half inch bore and one-eighth shell. Their smoothness and fineness greatly pleased him and he was using clay much stiffer than had been used on plunger machines.

"Huh! It isn't good for anything."

That is true, gentle reader; neither is a baby. Dad dances before it, gets down on his knees and says "boo!" goes through all sorts of foolish performances for weeks without recognition, but finally shouts in an ecstasy of delight, "He notices." Glad to know it's not a fool, and not long after the fond mother sings the sweet lullaby:

George exhibited this model at the Michigan State Fair of 1859. Coming back from lunch to his place one day, he saw that his little machine had been operated. Soon two men approached, and one said, "We have been working your model and it works well. You haven't been long in the business, have you?" "I have not and I know nothing about it," said George. "Well, we thought so, and we thought we ought to tell you that your plan had been tried and proven a failure. It forms the tile in spiral layers about as you would wind a ribbon spirally about a pole. When you burn the tile these layers part at the joints." The other Ananias nodded his approval and both stood waiting for a reply. "I will tell you what I am going to do; I will come to this fair next year with a full sized machine and will take the first prize," said George. That was a strong statement for one to make who had never worked a day as a machinist and had never made anything out of clay but unbaked marbles.

Let me tell you, young reader, there is no real obstacle to your success but ignorance. "What are you doing now, John?" I asked of a young man. "I am not doing anything; I'm out of a job," he replied. "Oh, don't say that! The most profitable time I ever spent, I believe, was when, as you say, I was out of a job. I went to my books and tools and tried



"What is the little one thinking about,
Very wonderful things, no doubt."

Thought develops the mind of a baby into that of a boy, and ideas develop the boy into a man, and ideas with skilled labor often develop a crude device into a very useful machine. Ideas are the seeds of thought, and if the seeds are good ones, will certainly bear good fruit. Perhaps there are some ideas embodied in this little machine that you do not recognize, notwithstanding they are in every auger machine of the present day in a modified form.

The core on the end of the auger dispenses with the bracket of the common die used on plunger machines. The power used for molding the tile is applied to a space but little more than the area of a section of the tile instead of over the whole area of the end of the box. The greatest pressure is just where the tile begins to form. Cells of air in the clay can not pass this point and explode at the orifice of the die. The flanges on the shaft enter the funnel so as to prevent the clay slipping back. It has the same effect and is for the same purpose as the casing around the auger of horizontal machines—patented many years afterward—but the claim was decided invalid. Many incidental advantages were caused by these features, which will be hereafter mentioned.

to fit myself to do whatever should fall to me to do. 'Whatsoever thy hand findeth to do, do it with all thy might' is a good rule, but not sufficient unless you want to do the same kind of work all your life; you must, when you have leisure, fit yourself to do work which requires more skill and more knowledge."

"You experiment a good deal in your work, do you not?" said a friendly young architect.

George: "What do you mean by experiment? Do you experiment when you build a church?"

Architect: "No, I know what I am doing."

George: "Then do you mean to insinuate that I don't know what I am doing?"

An experiment is just a step from the known to the unknown. The architect has tables which furnish him with data for any desired calculation, while an inventor may have to make an experiment to obtain his data.

An experiment was made which showed approximately the amount of power required to turn two, three and one-quarter inch diameter augers in compressed clay and force the clay through the die. This experiment revealed the fact that the rotary movement of the core was an objectionable feature; but for many years the smoothness of the tile was attributed to this feature, and an ex-commissioner of patents, said it

was like the drawing motion of a knife in smoothing a plastic substance. The smoothness of the tiles was owing to the superior form and finish of the dies to those used on plunger machines.

In the first complete machine the cores turned freely on the ends of the augers and this construction was followed until the termination of the patent in 1876. The first small augers used in the machine were ordered by the writer and were made by the Rochester Tool Company, of Rochester, N. Y. They were used on Sword Bros. tile yard at Adrian, Mich.

The two augers cost \$11.00 and they worked very successfully, for they were true and polished like a carpenter's auger. By these 1½-inch, 2-inch and 3-inch tile were made. The first auger for making 4, 5 and 6-inch tile was used in the same machine. It was a steel shaft with copper flanges costing \$46.00, too expensive for use. It was made in Adrian by order of Porter L. Sword. All augers for all machines after the first made for Sword Bros. were of cast iron molded from a pattern that was twisted out of the molding sand, having a draft on their spiral flanges from heel to point.

A. D. 1860—Let us resume our narrative. George proposed to build an auger tile machine which would grind the clay and mold the tile. It must have an efficient and sufficient pug mill, for no auxiliary machine could be used. It must be driven by two horses or steam power. Two horses would be considered a rather extravagant use of power and the machine must be made with as little cost as possible for a practical machine.

This last condition was in harmony with George's finances, for he had only about \$200.00, the savings of two seasons of clerkship. He must have help, so he drove to Tecumseh and interviewed Mr. Elijah Anderson, of the firm of Anderson & Brewer. Mr. Anderson was sorting iron and apparently gave scant attention. George talked for some time without eliciting any response. Finally, feeling a little impatient, he said, "Well, Mr. Anderson, I thought I would come and see you, show you my plan and see if you felt any interest and would like to give me any encouragement." Then Mr. Anderson straightened himself and said, "Yes, we will make a half a dozen of your machines and you'll sell them." A feeling of responsibility oppressed George and he did not accept the offer, notwithstanding it was for something of this kind he was earnestly seeking. He must have some one to assist him who understood clayworking, a brick and tile maker, so he drove to Adrian and talked with a former schoolmate, Ed Swords, who was working for his brother. Ed was pleased and said, "Why don't you make one of those machines, George?"

George: "Well, I'm not ready yet, Ed."

Ed: "If it's money you want, George, I've got two hundred dollars that you can take and pay me when you like."

George: "No, thanks, Ed, I wouldn't take a dollar of your money. Suppose the machine should be a failure, or I should die; you might lose your money. You can't help me that way, but you can help me get your brothers interested; then if we should fail, all any one could say would be, they ought to have known better."

Ed: "We'll do it, George."

Very soon George had made an agreement with Porter S. Swords for Swords Bros. They agreed to order a set of patterns and a machine and pay for them. They were to have the machine and George the patterns and in further consideration for the right of Lenawee county they paid George \$50.00 in cash. It was farther agreed that whatever improvements George made should be assigned to Swords Bros. for their territory, and whatever improvements the Swords Bros. should make should be assigned to George for his territory. The agreements were verbal, but were faithfully kept and proved profitable to all parties.

Thus the first set of patterns were secured without incurring any debt; the first machine was built and the assistance of good practical men secured. It should be stated here, "lest we forget," that the cutting table was the invention of Porter L. Swords. The patent was granted Sept. 29, 1863, and issued to the writer as assignee. It was the first cutting table in which the cutting frame was mounted so as to move with the tiles or brick while cutting, a feature embodied in every cutting table working with an auger machine.

It became necessary to pay patent fees and George was

out of funds. Walking along side of Edson Walker, a Presbyterian Elder, as they came out of church one Sunday, he said, "Brother Walker, I don't want to talk business on Sunday, but I shall need thirty dollars tomorrow." Turning slightly and putting his hand on George's shoulder, he replied, "We won't talk about it, George; you come to my house in the morning." A good Christian act, for had he not on the Sabbath day lifted his neighbor's sheep from out the pit?

The machine for Swords Bros. was made and placed on their yard in Adrian, where it was operated by horse power until they installed a steam engine in 1865. Another machine was made and exhibited at the Michigan State Fair in Detroit in 1860. In exhibiting the machine George made his first speech on underdrainage. He thought he had made a profound impression, for his hearers gave him such close and silent attention, but on stopping a moment, one of them said, "Well, stranger, that sounds very well, but I would like to know how on airth the water gits into them things."

(To be continued.)

Written for THE CLAY-WORKER.

MANUFACTURES AND MANUFACTURER'S MATERIALS IN THE FOREIGN TRADE OF THE UNITED STATES.



MANUFACTURES and manufacturers' materials now form practically four-fifths of the entire foreign commerce of the United States, their aggregate importation and exportation in the nine months ending with March, 1910, having been \$1,967,000,000.00, or 78 per cent of the total of \$2,515,000,000.00 representing the imports and domestic exports of the country.

Of this \$1,967,000,000.00 worth of commerce transacted by or on behalf of the manufacturing industries, imports supplied \$939,000,000.00 and exports \$1,028,000,000.00. Of the imports, \$439,000,000.00 represented the value of raw materials, \$217,000,000.00 imported manufactures for further use in manufacturing, and \$283,000,000.00 manufactures ready for consumption. Of the exports \$467,000,000.00 was the value of raw materials of domestic production supplied for manufacturing industries in foreign countries, \$200,000,000.00 partly manufactured domestic materials, and \$361,000,000.00 domestic manufactures exported in finished form. The foregoing figures are the result of an analysis of the latest figures of foreign commerce recently made by the Bureau of Statistics of the Department of Commerce and Labor.

A study of commercial movements, both at home and abroad, through the medium of the official statistics of the leading nations discloses a rapid development of the world's manufacturing industries, evidenced not only by enlarged importations of manufacturers' materials, but also by greatly increased exportations of manufactured articles. In this growth the United States is shown by the Bureau of Statistics' figures to have participated in a steadily increasing degree. The United Kingdom, Germany, France and the United States are the world's greatest manufacturing nations. A comparison of their exports of manufactures in the period from 1880 to 1908 shows, for the United Kingdom, a growth from \$958,000,000.00 to \$1,394,000,000.00, an increase of \$436,000,000.00, or 45½ per cent; for Germany, a growth from \$355,000,000.00 to \$995,000,000.00, an increase of \$640,000,000.00, or 180 per cent; for France, a growth from \$339,000,000.00 to \$486,000,000.00, an increase of \$147,000,000.00, or 43 per cent, and for the United States, a growth from \$122,000,000.00 to \$750,000,000.00, an increase of \$628,000,000.00, or 515 per cent.

This rapid growth in exports of manufactures from the United States—a growth more rapid than that of any of the other great industrial nations—justifies a more detailed analysis of commercial conditions affecting the manufacturing industry. In the fiscal year 1870 the importation of raw materials for use in domestic manufacturing was but \$56,000,000.00; by 1890 it had grown to \$171,000,000.00; by 1900, to \$276,000,000.00; and in the first nine months of the current fiscal year was \$439,000,000.00. Of partly manufactured ar-



Plant of Burke Brick Company, Fort Smith, Ark.

ticles for further use in manufacturing the importation increased from \$56,000,000.00 in 1870 to \$117,000,000.00 in 1890, \$134,000,000.00 in 1900, and \$217,000,000.00 in nine months of the fiscal year 1910. Thus the requirement of American factories for imported materials, including those crude and in the partly manufactured condition, has increased from \$112,000,000.00 in 1870 to \$410,000,000.00 in 1900 and \$656,000,000.00 in the nine months of the current fiscal year for which statistics are available. Meantime importations of manufactures ready for consumption, which in 1870 aggregated \$174,000,000.00, were, in 1890, \$231,000,000.00; in 1900, \$203,000,000.00; and in the first nine months of 1910, \$283,000,000.00. During the same period exports of crude materials for use in manufacturing increased from \$213,000,000.00 in 1870 to \$305,000,000.00 in 1890, \$326,000,000.00 in 1900 and \$467,000,000.00 in nine months of 1910; exports of manufactures in the partly finished state, from \$14,000,000.00 in 1870 to \$47,000,000.00 in 1890, \$153,000,000.00 in 1900, and \$200,000,000.00 in nine months of 1910; and exports of manufactures ready for consumption, from \$56,000,000.00 in 1870 to \$133,000,000.00 in 1890, \$332,000,000.00 in 1900, and \$361,000,000.00 in the nine months of the fiscal year 1910 ending with March. The nine months' figures already at hand seem to indicate for the complete fiscal year 1910 a total importation of manufacturers' raw materials of approximately \$630,000,000.00; of partly manufactured materials, about \$300,000,000.00, and of manufactures ready for consumption, about \$385,000,000.00; and a

total exportation of raw materials for use in manufacturing of approximately \$590,000,000.00; of manufactures in the partly finished state, \$267,000,000.00, and of manufactures ready for consumption, about \$480,000,000.00.

Manufactures form a decreasing proportion of the total imports and an increasing proportion of the total domestic exports of the United States. The share which manufactures (including both those ready for consumption and those in the partly finished state) form of the total imports has decreased from 53 per cent in 1870 to 44 per cent in 1890, and 42 per cent in the first nine months of the fiscal year 1910. Meantime the share which manufactures of all classes form of the domestic exports has increased from 19 per cent in 1870 to 21 per cent in 1890, 35 per cent in 1900, and 42 per cent in the first nine months of the current fiscal year. Considering only manufactures ready for consumption, those imported have decreased from 40 per cent of the total imports in 1870 to 24 per cent in 1910, while those exported have increased from 15 per cent of the total domestic exports in 1870 to 27 per cent in 1910. In other words, imports of finished manufactures in 1870 were \$174,000,000.00 and exports of finished manufactures \$56,000,000.00, the excess of imports over exports of this class of products being \$118,000,000.00. In 1910, as shown by nine months' figures, imports of finished manufactures were \$283,000,000.00 and exports of manufactures \$361,000,000.00, an excess of exports over imports of this class of products amounting to \$78,000,000.00.



Kilns in Which Fort Smith's Paving Brick Are Burned.

AN EXCLUSIVELY BRICK PAVED CITY AND THE PLANT THAT SUPPLIES THE BRICK.

ON THE WESTERN border line of Arkansas, so near Oklahoma that it will in time run over into that state, Fort Smith has by go and enterprise gained the right to be classed among the most progressive cities in the world. Some years ago, after experiments that proved the superior durability of brick pavements, it was decreed that all her streets and alleys should be paved with brick and nothing else. For a number of years the work of permanently

sending it away, and converts a raw material which, as a raw material is of little value, into a permanent asset. Verily, the Fort Smith fathers are wise in their day and generation and deserve the generous measure of prosperity which they now enjoy and which evidently they and their children will continue to enjoy in a constantly increasing measure for years to come, for the city is so situated that its constant growth is assured.

Fort Smith now has a population of 35,000, and is the center of a most fertile and resourceful fruit and agricultural region, a vast territory rich in timber and mineral wealth. One of her most valued natural resources is an apparently inexhaustible supply of natural gas. This insures cleanliness, a freedom from smoke and grime, while affording a cheap fuel supply for all industrial and domestic purposes. The city's geographical location makes it a great distributing center from which six railways afford excellent transportation facilities.

There is in the immediate vicinity of the city immense deposits of clay and shale, so there will be no want of the best building material, no matter how



North Thirteenth Street, Hotel Goldman to Left.

improving the city's thoroughfares has been pushed vigorously until now she has nearly one hundred miles of smooth, clean, sanitary streets, more good paved streets than any city of her size anywhere. The good work is going on at the rate of a dozen miles or more per annum, and will be continued until every street and alley within and about the city is paved with brick.

The tax payers of Fort Smith are already feeling the benefits of this improvement in a material way, for good brick pavements, once laid, require no repairs, and so there is virtually no expense at all for maintenance. On this account it is believed that ultimately the city's tax rate will be lower than that of any city in her class where other paving materials of a perishable nature have been used, and are still being put down, entailing a constantly increasing expense for repairs and replacements.

There are other ways in which the city has profited in a large way by adopting brick exclusively as a paving material, and will continue to profit in the years to come. For instance, there has been established almost within her corporate limits an extensive plant for the manufacture of paving brick, thus adding to her industrial life a home industry that gives lucrative employment to hundreds of workmen and keeps in circulation a vast sum of money that otherwise would have gone to remote points. It keeps money at home instead of



Garrison Avenue, Ft. Smith. Pavement Down Ten Years and in Good Condition. No Repairs Necessary or Likely to be Required for Years to Come.

rapidly and great she may grow. The climate of Fort Smith is ideal; the weather bureau records show the average mean temperature of the winter months to be: December, 41.7; January, 38.3; February, 41.8, so that Fort Smith can be considered to rank as a desirable winter resort.

At the Plant of the Burke Brick Company.

Two miles from the city, on the Belt Railroad which connects it with all the lines entering Fort Smith, the Burke Brick Company has established a modern paving brick plant that is admirably planned and equipped with every modern

convenience for the production of vitrified paving brick. Mr. M. C. Burke is president of the company, and to his painstaking management is due much of the credit for the success of the enterprise. The company owns an immense deposit of fine shale. There is at the surface about twenty feet of red burning clay and below this nearly one hundred feet of dark blue, almost black, shale. The latter also burns red. A Thew steam shovel scoops up this material, working a face of about thirty feet, deposits same in dump cars, which are hauled by teams to the foot of an incline, where a cable is attached and it is taken in the usual way to dry pans. With a view of improving the product an American pulverizer was installed some months since. This, with the two Frost dry pans, gives them a daily capacity of 60,000 brick, which are made on American Clay Machinery Company's machinery. A large per cent of the output is repressed on American Eagle represses. The brick are dried in waste heat tunnel dryers, designed by the Rodgers Engineering Company, of Chicago. Round down-draft kilns are used exclusively and are fired with natural gas.

The method of getting the brick to market is quite unusual. They are hauled in iron-bodied dump wagons by a steam traction engine. A train of five or six wagons are, by this means, hauled to the outskirts of the city, where a team is hitched to each wagon and the brick are delivered to the job. This method of hauling is much more economical than to haul each individual load separately. Mr. Burke was led to make the experiment through the possession of a couple of large traction engines which he had used in railroad construction work. He finds that one engine is ample for this work and so will be glad to supply any brick firm desiring to install a similar method with a good traction engine which, to all intents and purposes, is as good as new.

THE SENSE OF ADVERTISING.

The progress of the advertising spirit among business men has been hampered considerably by two things. One of these is the old ethical spirit against extolling one's accomplishments and virtues in public, and the other is that of the expense involved.

The most important of these is the ethical one, because it is deep rooted and was fairly well founded at one time. There was a time, back in the early days, when quite a percentage of the advertising done in periodicals was what might be termed "Catchpenny business," and was carried on by fakers, who, by misleading statements got a great deal of money out of people. It was because of the prevalence of this class of advertising in the early days of the growth of advertising that some of the staid old people, like doctors, who might have inclined to advertise, considered it unethical to do so. This was principally because of the questionable methods in advertising of quack doctors and fakers advertising medicines. Some of the country doctors would carry a card in their local county paper, but generally the more distinguished the doctor became in his practice, the more rigidly opposed to advertising he became.

The same spirit found its way into many of the professions, the more dignified felt it was placing them on the level of quacks to advertise, but we are beginning now to awaken to the fact that there is something wrong with this spirit and to realize that publicity and dignity may go hand in hand, and that in this day of heavy population and rapid progress it is almost essential for a man to have some form of publicity to obtain much recognition in either the professional or the business world.

Touching this same matter, but in regard to dentists, there is quite a lively tilt on between Elbert Hubbard and the dentists in the March Listing, which says, among other things,

"To advertise is no longer immoral.

"The association of men for mutual study and social in-

Snapshots Taken for the Clay-Burke Brick Co.,



The Shale Bank and Thew Steam Shovel.



The Traction Engine Hauling Train of Wagons.



A Wagon Load of Brick on Way to Job.

Worker at the Plant of The Fort Smith, Ark.



M. C. Burke and His Favorite Roadster.



The Machine Room.



One of the Gas Fired Down-Draft Kilns.

terchange is beautiful, but an association that formulates a code of false ethics is atrocious. There are enough actual sins without making any by hand.

"The falsity lies in this: the assumption that the advertiser is unable to make good his promises.

"This harks back to a time when most advertisements were fraudulent.

"But the times have changed—the man who advertises now can not afford to misstate. He must produce the goods. . . . Also, I would say if he is a really good dentist, and knows he can make good, let him advertise the fact to the world and not affect a modesty that is none of his. A dentist is no coy, shy, young maiden. Rather, he is a grass widow—he knows what he wants. Let him speak out! I want every good thing advertised, because this world is short of good things. Only about 5 per cent, or less, of our population patronizes a dentist as they should. There are 40,000 dentists in America. There should be 200,000. Let Voelker and Ottolengui advertise to the world just what they can do, and then when the work begins to pour in, hire a few strong, fine young men to help them take care of the patients.

"That Interstate Dental Society has pyorrhea alveolaris. Its teeth are all loose, and should be pulled, and plates made. It is old, senile, stupid, and has lost its gimp, guimpe, gamp and gumption. It's too old for a mistress, and too silly for a seer.

"Advertise, gentlemen, advertise! Get the work, and then make good."

This represents, in some ways, the extreme points of people reluctant to advertise where the matter of ethics has stood in the way much longer and is a stronger barrier than the business itself.

To a certain extent the manufacturing and the mercantile business has been hampered. To some extent this is because some fraudulent forms of advertising have been engaged in, and others thought if they advertised they would be put on a par with the same fraudulent firms that were advertising. The distinction here is that people who advertise should not follow the same methods of fakers in advertising things that are not true, but should stick to truth telling and not to lying. One may present truth as attractively and catching as possible, but no man should ever make a claim in advertising that he can not make good. When he does this, makes good every claim he has entered, and obtains a reputation for so doing in business, the man or manufacturer is in the way of obtaining much greater prominence than is practicable through any other method.

The fact of the matter is, that today all kinds of respectable publicity and decent advertising is good, and helps a firm in its business, whether that business be dentistry, common brick, pressed brick, paving brick or running a department store. We see evidences of this all around, and occasionally we see, too, that people take up forms of publicity that hardly look respectable because they sacrifice dignity and refinement for the sake of freakishness or some questionable way of attracting attention. Let us bear in mind that in this assertion the higher form of respectability is meant and respectable advertising must present the truth in a decent manner. All of it is good, no matter whether it is running in the news columns of a local paper, as copy, or in a periodical. There are many different ways, but all of it is good. It is simply a question of what does the most good and brings the greater results for the money invested.

Here is where we come to the true handicap—that of the money question involved in the matter of advertising. Many a man is hesitating because he can not see just where the results would come in. To many a man the idea of spending money in advertising is on a par with spending money for charitable motives to help some local institution, and no doubt many a man gives a lot of money for advertising space with the feeling that he is just simply being held up for that amount.

This is not the right spirit. It is probably better to adver-

tise in this way than not to advertise at all; but the truly progressive spirit of advertising should take up with advertising as one of investment, or expense of the firm along with insurance, or what might be termed one of the fixed expenses.

We seldom can trace direct returns from advertising or be able to figure out in dollars and cents just how much each dollar invested for space brings in to the manufacturer, and it is because of this that many a man imagines there are no returns. Occasionally there is a condition of circumstances that one may trace the amount of business secured through or generated by a specific amount of advertising, but if every man in the business should undertake to charge his advertising up direct and trace returns, advertising would soon be proven as a failure. There are many things about it like good will and reputation that are important, but show no ledger assets, yet we feel it in the business just the same. In some instances it may give one prestige, in other instances it may simply save a competitor from coming in and developing a business; in still other instances it may help develop a general demand for one class of material instead of another.

We have had an excellent example of what advertising will do in the advertising of concrete block and cement material during the past eight or ten years. There was an enormous business built up in these things, much more, in fact, than there should be, or was justified or called for, simply because of the extensive advertising carried on by people interested in the development of this branch of the trade.

To a certain extent these products interfere with the use of brick and other clay products, and that is where the illustration applies. If a given business man or product is not kept before the public some day a competitive article will be kept before the public so that the merits of the older offering will be forgotten and the new one will take its place. As it happens to individuals, it will happen to materials, and it is happening in one form or another all around us, showing that one must advertise. It is impossible to estimate the value of this in dollars and cents. It is impossible to estimate the extent to which brick and other clay products might have been built up in this country by this time if the same publicity in print had been given them years ago that has been given other products. Let us just suppose, for example, that the same system of advertising had been used for brick and other products as was used for breakfast foods, shaving soap, scouring soap, talcum powder and other things. There is no doubt that many a man who has built a home of lumber or other product would have been tempted thereby to have built of brick. Then, too, this might apply to brick pavements and there might have been fewer asphalt pavements and more good brick streets and less individual work needed in this line for other manufacturers today had there been more extensive advertising.

It finally evolves or resolves itself to a question of how much everybody is willing to give up for the general good and for the development of a business. No man wants to cripple his business for the present for the sake of greater harvests for the future—that would be going to an unnecessary extreme. Instead of advertising, many go to the other extreme and take everything in sight for the day and let the future take care of itself. There should be a happy medium wherein every man would give proper care to the business of today and also give a fair amount of attention to local advertising, and then lend both his substance and his ideas to a general system of publicity out of which all may reap benefits in the future.

In the disorders of the industrial body, as in the ailments of the human system, an ounce of prevention is better than a pound of cure, and both employers and employes should be willing to use it. The trouble seems to be that each one wants the other to take the medicine, while the facts indicate that both need it.



WHY SO?

One is surprised to see in some localities the cream of the farms—the choicest acres—lying waste, while a little expenditure of time and money would make it all available for growing good crops. Frequently, after being drained, the first crop pays all the cost and leaves a fair profit besides, while by thus eradicating these swales and ponds, insuring the future profitable use of the land for crop growing and the healthfulness of the farm as well. Besides, it gives to the farm a more orderly and good husbandlike appearance.

The writer has often wondered why some farmers and land owners skim around such eyesores to their business, rather than tackle them and thus improve their future prospect of success and add not only to their receipts, but to their character for doing things well.

WHAT THE RENTER SAID.

Is the farm all tile drained?

All the black land is, but not the upland. The clay soil now needs underdraining as much as the black land did before it was underdrained. The high ground is now soggy and wet long after the tile drained black land is ready for the plow. I have tended this farm for four years and know every foot of it. It is said that this farm is well underdrained, but it is not. Only the low land is tiled out, but the higher ground now needs underdrainage very much. I have put in two drains on the higher clay soil and I am sure from what I have seen of their working that if all the higher clay soil, such as we used to think did not need drainage, was well underdrained, the crop yield on the clay soil would be quite doubled and the cultivation would be much easier and the certainty of a good crop would, with good cultivation, be assured.

INTELLIGENT EFFORT IN DRAINAGE.

The accompanying cut illustrates what is being done in the drainage of 340 acres of low-lying wet land near Chicago, Ill. It is seemingly difficult to get many landowners to appreciate the advantages of thorough work in tile draining land that needs this important improvement of soil conditions.

While it is true that this work is being done by a land company, to increase its value for growing truck for the Chicago market, yet it is equally true that the increased value resulting from thorough work applies to all intelligent efforts along the line of land drainage.

It is a recognized fact by those who are experienced in the cultivation of lands, that thorough drainage doubles the value of farm lands for agricultural uses, and in some instances much more than doubles the value. The richest lands are usually the low, flat lands, but the fertility is made available by thorough tile drainage. Such lands are usually difficult to drain, for the reason that it is often difficult to secure a sufficient outlet and also requires very exact work in the construction of the drains; no guess work will suffice to secure the best results.

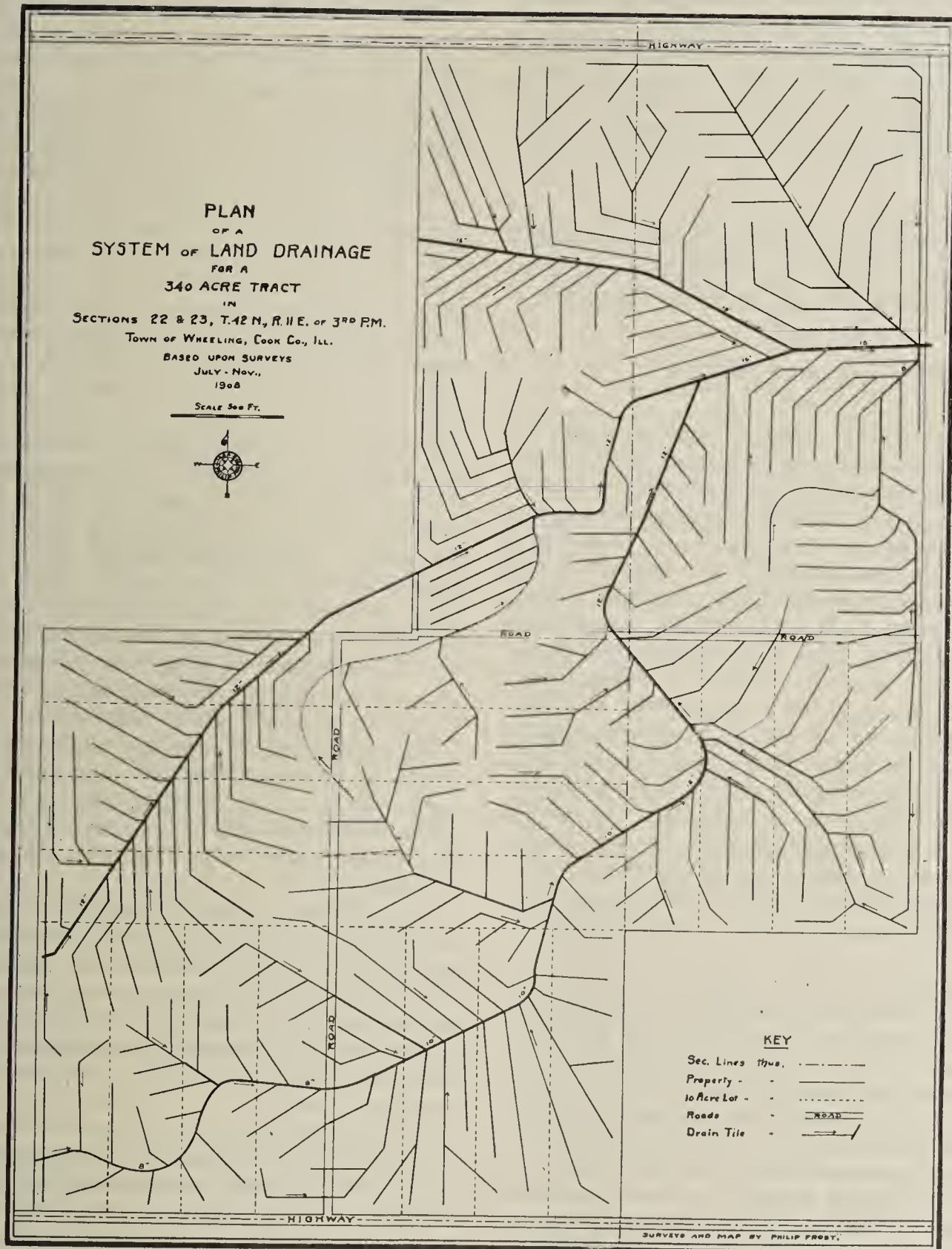
In such work it is absolutely necessary to have a complete survey of the land precede the laying out of a com-

plete system of drainage. Without this precaution it is hardly possible to secure a uniform fall and good working drainage. Without this there is no certainty of securing good drainage.

The system of drainage herewith illustrating the drainage of 340 acres comprises over twenty miles of tiling; sizes of tile from 4 inches to 18 inches; laterals are about 4 rods apart in the higher ground. All of the drains are underground, so when the entire system has been completed, every foot of the surface soil can be made available. From a careful soil analysis it is estimated that with careful, intelligent

into account the soil conditions, made available by thorough tile drainage.

No one need suppose that this is an exceptional case; to the contrary, there are thousands of acres of land that, with thorough tile drainage and intensive farming, would give like or better returns. On almost every farm in the middle west there are areas of land that would pay handsome returns if well tile drained and afterward cultivated along the line of up-to-date methods. The trouble is to get land owners to begin and test the practicability of the work. One may say, "Oh, as to that, I have some of the same kind of land,



methods of maintenance of the soil fertility from year to year and good cultivation, the following yield of products named may be reasonably expected:

Onions, per acre, 500 bushels and up; potatoes, per acre, 300 bushels and up; beets, per acre, 500 bushels and up; tomatoes, per acre, 350 bushels and up; cabbage, per acre, 6,000 heads and up; cauliflower, per acre, 5,000 bushels and up, and celery, per acre, 1,200 dozen and up, and other vegetable products in like proportion. The foregoing estimates, in our opinion, are not extravagant when we take

but I lack the market advantages; what could I do with 500 or 1,000 bushels of onions or potatoes?" In answer to this question, there are railroads, traction lines and waterways within a reasonable distance to draw products and ship by carload lots to the great markets.

The old adage that "When there is a will there is a way" is true today. There are thousands of farmers who have openings to advance their interests if they will find them, and thousands who are paying taxes on land that does not pay them a farthing of profit, who don't or will not see

what can be done with open doors to success, if they would only see and act.

Tile factories have been and will be established within reach of all who may need drain tile to do the work of reclaiming their land. But what shall we say of those who are situated conveniently near good tile factories, where tile can be had at very reasonable prices, on terms to suit their needs, and yet fail to do anything to bring about soil conditions by means of tile draining, that would pay them from 25 to 100 per cent. annually for the investment of money and labor if the work is well done.

The increase of population and the settlement of the western lands will soon, very soon, bring about conditions that will make the better improvement of our farm lands imperative, and the reclamation of our swamp lands and the better improvement of our level lands a matter of national importance. There is need to broaden our view of things and intensify our activities if we would be benefactors, making ready for that which will be; aye, that even now is knocking at our doors.

A better improvement of our farm lands by using more drain tile, better drainage work, more intensive farming, the maintenance of soil fertility, the reclaiming of the waste places, be they small or large, are some of the needs of the hour.

OUTLETS AND SILT WELLS.

Silt wells are needful and useful in some drainage systems. They serve to gather silt and may be cleaned out from time to time. The proper location for a silt well is in some depression where the surface water is not easily disposed of and it is desirable in a heavy down-pour of rain to get rid of the water faster than can be done if it is required to sink down through the soil and pass out through the drain. Again, a silt well may be used to advantage where two or three main drains come together. Then it is desirable that the inflow of water should be above the outflow or outlet, to give a water pressure which will increase the outflow; otherwise, if the water flowing into the silt well is on a level with the outflow the capacity of the drain will be reduced, or a straight drain would carry the water faster. Where it is intended to use the silt well to receive much surface water, the opening into the well should be screened to keep out any floating trash. A silt well may be dug to a depth of two, three or more feet below the line or grade of the drain. A well constructed deep silt well may be of use in many instances for watering stock.

The main outlets in any drainage system embracing a few acres of land should be screened to keep out vermin, such as polecats, rabbits, coons and groundhogs. In several instances we have known them to pass up as far as the size of the drain would permit and then be unable to turn or back out and then die and swell up, stopping the flow of water in the drain completely for a time. It is difficult to locate the trouble and requires considerable labor to clean the drain of the obstruction. The outlet should be screened with wire to avoid such trouble. With wire screens it is necessary to clean off the rootlets that will be carried to the outlets during and after the seasons for growing crops.

It is true, however, that in the wide practice of under-drainage there are few systems that include the use of silt wells, though they might be often used to advantage.

Just about now, many of our city fathers should have their think tanks well paved with the fact that it is not so much first cost as ultimate service that should be a deciding factor in street making. Are you helping drive these facts home and boosting brick as a paving material in your town? If not, get busy.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE TWIN CITIES AND THE NORTHWEST.



THE SEASON of 1910 has experienced, in the four months of its history, a rush of building which has never been equaled in the Northwest. While there may have been times when permits have been issued for immense structures which gave a preponderance to the month which might exceed the current season, yet that did not represent any general building spurt. In Minneapolis, the record for one month is held by a period about twenty years ago, when there were two permits issued—one for a 12-story building, and the other for the city and county building, which covers a city block—the two running the month's total to around \$2,500,000, although it was a dull month naturally. But totals now being attained are made up of an array of large and small, and number more in individual permits than ever. What is more to the point from the standpoint of brick manufacturers and wholesalers, is that the buildings being erected include more brick structures, in whole or in part. Brick work is gradually growing into favor for uses that have been rather neglected in the past. Brick foundations for the structure above ground to the water table have begun to be used more often on residences. Brick veneering work in combination with half timber and with cement plaster above, and decorative courses of brick are all being used in residence construction in ways that in the past have been ignored. And much more would be done if the building public could be induced to inspect the possibilities in brick. The display of the cement industries in the form of a show could well be duplicated by the clay interests, and the public invited to come in and learn what really is possible in brick. It would have a marked effect on public interest and public knowledge. But the lack of positive knowledge of what varieties of colors and combinations are possible in brick leads many a builder to go to other materials and be less suited and get less value for his money.

In the Northwest, steps are being taken to overcome this by means of more publicity. The Northwestern Clay Association, at its recent meeting, took up the question and devoted considerable attention to developing a better and greater publicity in the real value of brick. Much is expected from this move.

The demand for common brick this spring has been active, and there is threatened a shortage of supplies until new brick can be secured. The apparent early spring has been delayed by the intervention of frosts several times, which have worked serious loss to the plants which had started up. Not many plants have been reported as suffering much damage, but some have lost by the frost and freezing temperature which prevailed recently.

The completion of the new million-dollar Hotel Saint Paul, in St. Paul, is bound to be a big boost for the clay interests, for the walls of this great structure, above the second story, are of clay interlocking tile, made by the Twin City Brick Company. They make a most attractive exterior and, as the building itself is one of the display places of the city, more than usual attention will be paid to the material in consequence.

Fred Greiner, long and favorably known in the brick trade of the Northwest, died April 5, at Chattanooga, Tenn., whither he had gone about six weeks previously because of poor health. Mr. Greiner had been engaged in the brick business at Chaska, Minn., for twenty-five years and had a wide acquaintance. For fifteen years he has been associated with J. W. L. Corning, of St. Paul, as the firm of Greiner & Corning. About a year ago the business was incorporated as the Chaska Brick and Tile Company, with offices in the Ryan

Bldg., St. Paul. His death will not interfere with the business, which will be continued as before.

The American Clay Products Company, of Stillwater, Minn., has about completed its new plant and will begin operations without delay.

Hans Westegaard has recently leased the plant of the Devils Lake Vittrified Brick and Stone Company, at Devils Lake, N. D., and has begun fitting it up for operation. The plant has a capacity of 15,000 brick.

James Leck, of Minneapolis, has been awarded the general contract for the erection of the new warehouse for the Parlin & Orendorff Plow Company at Seventh avenue North and Washington avenue, Minneapolis. The building will have brick walls, and will be seven stories high, covering a quarter block. Cost, \$200,000.

Building permits for Minneapolis for April amounted to \$2,233,610 on 832 permits. This passes all totals, save December, 1889, when two large structures made a slightly greater total. April, 1909, had 824 permits, aggregating \$1,401,955, which gives a gain for the past month of \$832,000, or well over 50 per cent. The total for the first four months of 1910 is \$4,748,145. The heavy months are still to come, and the building inspector anticipates a total for the year of close to \$16,000,000.

St. Paul permits for April ran well with those of a year ago, both months touching high totals. The past month had 394 permits, aggregating \$1,160,378. April, 1909, had 419 permits, amounting to \$1,137,616. The prospects are bright for a big total for the year.

The Hennepin Avenue Methodist Episcopal congregation, of Minneapolis, is about to start work for the erection of a guild hall in the rear of the present church, to be of brick construction and to cost \$75,000. Plans have been adopted for a new church, to be of brick, which will cost \$225,000. The church will be erected after the guild hall is completed.

William Lindsay, of Milwaukee, will erect a brick warehouse at Sixth and Washington avenues North, in Minneapolis, at a cost of \$100,000. It will be occupied by the Aultman-Taylor Company, threshers and engines.

Round & Ellerbe, architects, of St. Paul, have prepared plans for a handsome brick structure for a publication office for the Dakota Farmer, of Aberdeen, S. D. It will be 50x125 feet in size, two stories. Cost, \$35,000.

Cass Gilbert, architect, George H. Carsley, associate, are preparing plans for an extension of the Endicott Arcade Building, St. Paul, through to Fifth street, giving a continuation of the present building from Fourth street to Fifth. It already has an arcade at right angles from the Fourth street arcade through to Robert. The building will be of brick, and will be ultimately of six or more stories. Cost, \$350,000.

The Anheuser-Busch Brewing Company, of St. Louis, has acquired a site at Tenth avenue, South, and Fourth street, in Minneapolis, and will erect buildings for a storage warehouse there to cost about \$100,000.

The University of Minnesota will erect two engineering buildings in southeast Minneapolis, for the College of Engineering, to cost \$250,000. Both will be of brick construction, one being two stories, 230x60 feet, and the other one story, the same ground size.

Excavation is under way in St. Paul for the building for the Y. W. C. A., although it is not certain when the contracts for the building itself will be let. The structure is to be of brick, and is to cost about \$250,000.

St. Paul and Eastern capitalists have joined in a project for the erection of a sixteen-story office building in the downtown district of St. Paul, the walls to be of pressed brick and terra cotta above the first and second stories. The building will cost \$500,000.

The J. & W. A. Elliott Company has been awarded the general contract for the erection of the McMillan brick building on Hennepin avenue, above Eighth street, adjoining the

Holmes Hotel. The building will be six stories high and will cost about \$75,000.

Griggs, Cooper & Company, wholesale grocers, St. Paul, have started work for the erection of a cracker factory and of a candy factory on their tract in the Midway district, where they have thirteen acres. A complete array of buildings is to be erected there by this company at a cost of \$500,000 or more.

T. WIN.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

IN EXAMINING the different tables published by the various Puget Sound cities regarding the permits issued for buildings, we find that brick is really only a very small part of the building materials which go to make up the buildings. Of 1,243 permits issued during April in Seattle, only four were for brick buildings. The brick and building situation is slow, and while there is a great deal of work being figured, the general work is quiet. Nothing rushing, and the outlook for the summer months is not very bright. Tacoma is now figuring on erecting the only first-class business block on the Puget Sound. The building will be erected by the combined interest of the Tacoma Commercial Club and the Weyerhauser Timber Company, of St. Paul. It will be a 12-story building, and will add a great deal to the appearance of Tacoma. The National Realty Building in Tacoma is erecting its steel very fast, and this 19-story building should be completed before winter. No large buildings are being erected at present in Seattle, but two are being drawn, and before long should be ready for figuring.

The brick and clayworkers of the state are awaiting the outcome of the convention, which takes place the latter part of this week, with interest. The program is quite good, and we believe that the various interests will pull together and make the clayworker convention of the state of Washington an annual affair. It is only to be hoped that they will change the time of holding such convention to a more leisurely time than in May.

Mr. A. F. Dickson, of Tacoma, who has been conducting experiments with clays for the last two years, is now organizing a company under the name of the Jovita Brick Company, with a capitalization of \$15,000.00, to manufacture common brick. The plant will be located close to the Jovita station of the Tacoma-Seattle Interurban line.

The new plant of the Little Falls Fire Clay Company, at Palmer, where the company intends to make paving brick, is progressing very favorably. The contract for the continuous gas kiln is let, and work will start on the kiln at once. Samples of the new brick are now being tested by the various street departments in the larger cities, and compare very good with Eastern makes.

The Woodenville Brick and Tile Company, of Woodenville, is adding another section to its dry kiln in order to be able to keep pace with the increased demand for the output.

The Tonasket Brick, Tile and Lime Company will establish a brick yard in connection with their lime proposition at Tonasket. Mr. W. J. Dorwin will manage the yard and have the plans prepared for the building which they are contemplating to erect.

The Gig Harbor Brick Company has made a contract with Excelsior Kiln Company for the erection of their new kiln at that yard. The Gig Harbor yard has always had some trouble with burning their dry pressed brick. The management hopes with the assistance of this new kiln to eliminate this trouble and make good brick hereafter.

SIWASH.

Notwithstanding the modern flat buildings and apartment houses, Uncle Sam's domain is the greatest nation of homes in the world. And the best of it is, we have only fairly begun the work of home building, and there are much greater things in sight for the future.



Kiln for Burning Fire Brick.—A small continuous kiln with six or eight chambers, having each a capacity of twenty-five to thirty tons of clay ware, fire brick are burnt very cheaply and with excellent results. In such a kiln dinas brick were also burnt by cone 15 with 18 to 20 per cent of coal consumption, while the fire brick were burnt by cone 12 with 15 to 17 per cent of coal consumption.—Tonind. Z. Z., No. 25, 1910.

Fluorspar Porcelain.—Dr. E. Berdel reports the results of his experiments with fluorspar in producing porcelain. After many experiments he obtained a porcelain which matures between cone 7 and 9, and also has been able to produce some excellent results in the porcelain glaze line. The body is composed of kaolin, 46 per cent; flint, 21 per cent; feldspar, 27 per cent, and fluorspar, 6 per cent, while the glaze consists of feldspar, 111.8 per cent; magnesite, 16.8 per cent; whiting, 60 per cent; kaolin, 51.6 per cent, and flint, 132 per cent.—Sprechsaal, No. 6, 1910.

Prehistorical Pottery.—According to Mr. J. Pages-Allary, no value has been placed on the condition of pottery which has been found from olden times, and the ages to which it belongs. He has compiled the following table of times:

In Paleolithic Age the pottery was unburnt.

In Neolithic Age the pottery was very little burnt.

In Bronze Age the pottery was little burnt.

In Gallic Age the pottery was well burnt.

In Gallic-Roman Age the pottery was good burnt.

In Merovingic Age the pottery was hard burnt.

In the Middle Ages the pottery was glazed burnt.—Tonind. Z., No. 24, 1910.

Kiln Wash Preparation.—In many cases a wash of clay for the crown of kilns is not sufficient to tighten the crown. A mixture of fifty parts of broken unburnt brick or drain tiles, forty-five parts of screened kiln ashes, and five parts of coarse salt can be prepared by soaking. The mixture, which can be used as a thick paste, should be made sticky by the addition of some flour. The crown should be carefully cleaned of all unevenness, and all loose burnt material. In order to determine if the mixture is tight enough, a small experiment can be made on the kiln crown, and if the mixture does not prove tight enough, more salt can be added. If the mixture is found to be too easy fusible, a lesser percentage of salt should be used.—Deut. Topf. & Z. Z., No. 11, 1910.

Fire Resisting Clay Ware.—The demand for fire resisting clay ware is increasing very rapidly, and the ware now on the market is good in many respects. In order to make such ware it is essential that a good body should be used. The body is composed of a good plastic stoneware clay to the amount of 30 to 40 per cent, and the balance of grog to the amount of 70 to 60 per cent. The grog should all pass through a 40 mesh screen. If the grog is too sharp, a part of the grog should be substituted for coarse sand. The ware made from this body should be biscuited by cone 3a. The glaze burn will take from cone 8 to 9. The glaze is composed of a frit as follows: Dehydrated soda, 186 parts; feldspar, 1,112 parts; magnesium, 63 parts; oxide of zinc, 203 parts; whiting, 300 parts; oxide of tin, 450 parts, and flint, 1,740 parts. On every

381 parts of this frit, after calcining, 77 parts of kaolin are added. This glaze will give a good enamel. Another method is the application of an engobe, consisting of clay substance, 45 parts, flint, 30 parts, and feldspar, 25 parts. After the ware is engobed the same is burnt biscuit at a temperature of cone 2a, and a glaze applied, which is clear, consisting of a frit with 1,278 parts of feldspar, soda 127 parts, whiting, 650 parts, flint, 1,572 parts and boracic acid, 1,240 parts. To every 400 parts of this calcined frit add 100 parts of kaolin. This glaze will mature at cone 8, and if fired right, will give excellent ware.—Keramische Rundschau, No. 5, 1910.

The Porosity of Roofing Tiles.—When roofing tiles are too porous, they should be burnt harder in case they will stand a higher heat in burning. In case they can not stand a higher temperature, a remedy to decrease the absorption by immersion in a mixture of soft soap as being the first operation, and the second immersion in a solution of copperas. The process produces a fat acid composition, so-called iron soap, which has the property of the filling up the pores of the tiles. This process necessitates the handling of the material twice, but in case of a good tile, it will not add enough to the cost to make any difference.—Deut. Topf. & Z. Z., No. 12, 1910.

Brick Setting in Continuous Kilns.—When one looks at the setting of brick in a kiln it looks an easy proposition, but to the clayworker it is a source of constant watching and anxiety. When the burn comes out wrong the poor kiln

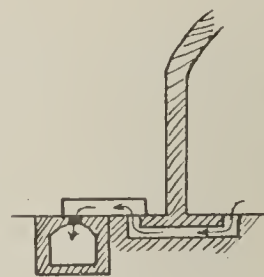


Fig-2.



Fig-3

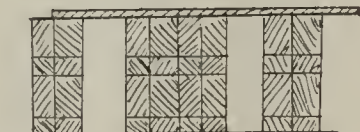


Fig-4.



Fig-5



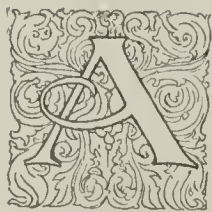
Fig-6.

burner is blamed first, then the setting of wet brick is next in line. Often the setting is wholly at fault. If the brick are set too close, the firing has to go slow, and the direct result is a decided increase in coal consumption. A direct result of too loose a setting is the fact that the burner has pushed the arches too much, and that the greater part of the kiln will be too soft. The following tables and sketches will explain the working of the different setting of brick. The observations were made on a continuous kiln with bottom draft. Fig. I shows the plan of the kiln and the location of the flues. Fig. II shows the flue arrangement with the stack. The kiln has eighteen chambers, and every chamber has two flues leading into the chimney. The first flue is always ten spaces ahead of the fire, and the balance follows behind. The four first flues take off all the gases of the fire, while the other flues bring in fresh air. The principle is somewhat like a down-draft kiln. The kiln is set with a better class of brick and roofing tile to the amount of 60 per cent and the remaining 40 per cent is common brick. It takes from nineteen to twenty days to make a round in this kiln burning. In order to see exactly in what way the burning of the kiln is progressing, the daily progress of the firing is tabulated, in which the abscisse are equal to days and the ordinate the progress of the setting by days per twenty-four hours. Such

tables are very easy for comparison, and will also give information regarding any irregularity—which might have taken place. By such comparison, it can be seen at a glance if the present burning is equal in time to the last one, or if the kiln is burning slower. The curve will give all irregularities, and when the kiln is drawn, it can be stated exactly where the fault is if the bricks do not come good from the kiln. The kiln has a draft gauge, and the temperature is measured at regular intervals, about three times every day. To determine what is the best way to set the kiln, several experiments are made with different methods of setting the kiln. The first burn on the table shows that the fire did not travel ahead very fast; it took twenty-seven and a half days to make the round trip burning. This was seven days longer than usual, and showed that the change in setting was no good. The experiment was made in summer time so that the dampness of the brick had no bearing on this low burning. With slight changes the burns two and three were made as shown in Fig.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



STILL GREATER building record may be set for Chicago by the year 1910.

With the spring building season now well advanced, there is everything to encourage this hope and that in the face of the fact that the building last year far exceeded all previous records and bid fair to stand for a good while to come.

Best of all, in the estimation of the brick and clay products man, be he dealer or manufacturer, is the fact that of all this building the great, great bulk is of the world's best constructive material, considered in an all-round sense—brick.

On the smaller buildings brick is used throughout. In the huge steel structures it forms the walls that fill up the mighty skeleton of the framework. In reinforced concrete

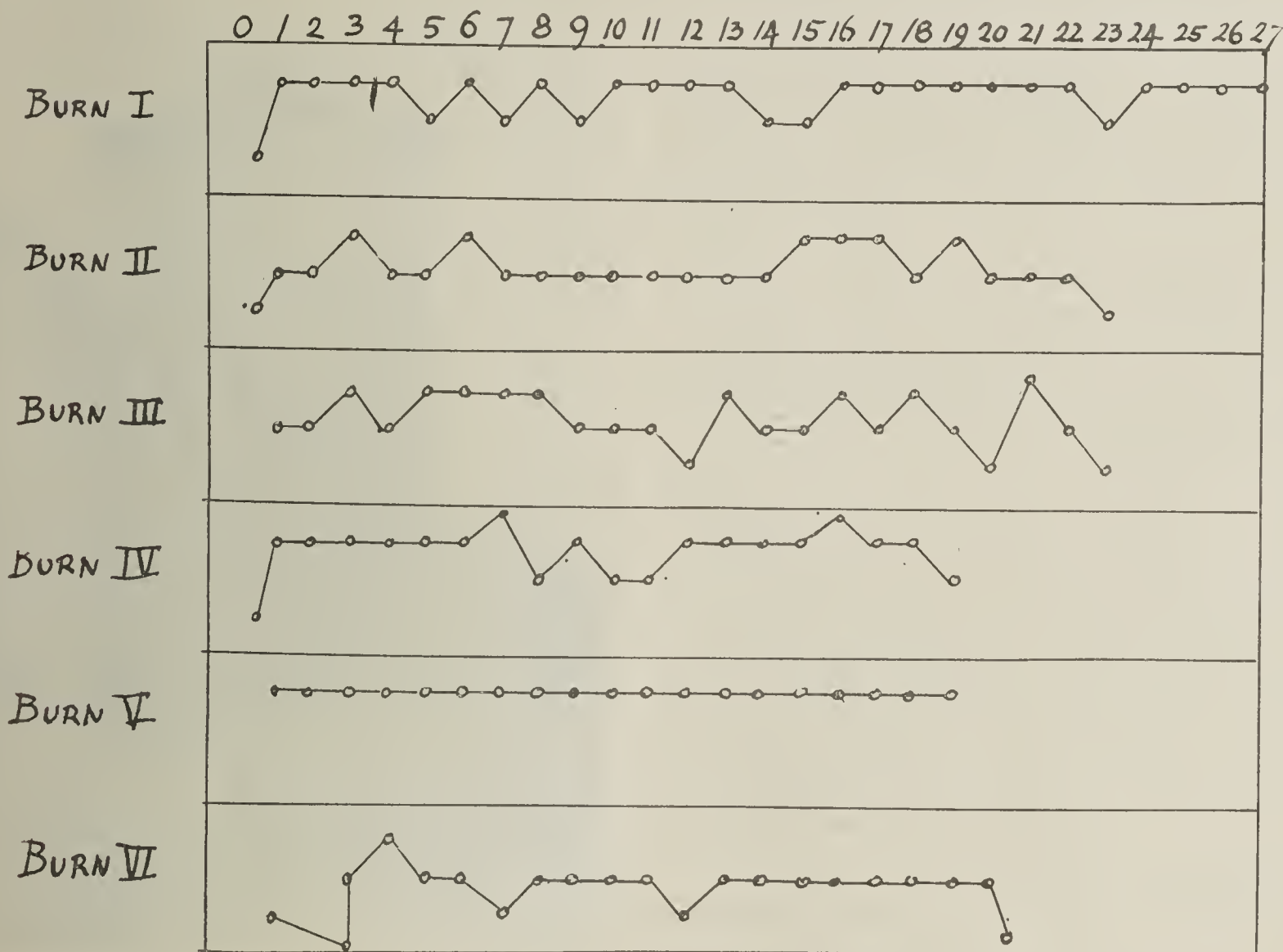


FIGURE I.

III, but with not enough better results than before. A change in setting was made, as shown in Fig. IV. The burning, as shown in the fourth one was much better in time, but the results were not as good, as it showed that the top was very good burnt, while the bottom was all over burn. Evidently the flues were too large, and in the next burn the setting was gone back to the old system, but with the difference that the top brick was set far apart, as in Fig. V. The result was a very even burn, as shown in the fifth one, and the results very satisfactory in some parts of the kiln, while in other parts the kiln was shown to be behind. To overcome further trouble it was decided to make another change in the setting, as shown in Fig. VI, and the sixth burn was the result. This method of setting has been followed with great success, and the duration of burning is now from nineteen to twenty and a half days. Engineer Dr. Fisher describes this system in this article, and shows that with systematic changes better results can be obtained.—Tonind. Z., No. 20, 1910.

structures brick plays an essentially important part as an outer veil to give artistic tone and quality to the building, for use in the interiors and in many other ways. Needless to say terra cotta continues supreme where the very highest decorative effects are sought, and fireproof is more essential than ever in its less conspicuous role. The fact is that Chicago is fast becoming the great brick city of the country, the handsomest residences, the most imposing hotels and office buildings, the largest warehouses and manufacturing plants now being erected or planned are practically, without exception, of brick construction. It has been estimated recently that fully 90 per cent of all the buildings now being put up in this city are of brick. Chicago leads the country in the use of this wonderful material, and the most convincing result of this fact is the comparison in the per capita fire loss in Chicago, where it is now estimated at \$1.75, with the average for the rest of the country, which is computed at \$2.50.

Down town one can scarcely turn a corner without seeing evidences of building activity—the new Harris Bank building

going up in Monroe street, between LaSalle and Clark streets, the new Sherman House being rushed in the latter stages of development, the People's Gas Light and Coke Company building half finished and the other half well under way, and many another building of greater or less importance. And all the time we hear definite talk of more to come. In LaSalle street, right south of Monroe street, a twin sky tickler is to be put up adjoining the present Borland Block, which now occupies the southeast corner of these two thoroughfares.

Still another hotel, the Sebree Hotel, a 16-story bit of architectural magnificence, to be erected at 114 Madison street, is being planned. It is to be put up for James K. Sebree, and brick and terra cotta are to play a mighty important part in this, for the architects, Postle & Mahler, with Jennie, Mundie & Jensen as associates, have selected materials by which it is hoped to secure something like permanent color effects, similar to the Hotel Astor in New York city. The atmosphere of Chicago, caused by the smoke, soot and sulphur, is such that delicate colors can not be maintained for a very long time and the architects have combined material that will give a high degree of permanency, the like of which is rarely attained in this city. The design of the front of the building is in the manner of the French Renaissance, and it will be executed in paving brick and terra cotta. The paving brick will be a dark Indian red, relieved by cream-colored terra cotta. These have been chosen for the reason that the brick may absorb moisture to a moderate degree, but that the terra cotta will be impervious. The upper part of the front will be surmounted by red tile.

Henry C. Lytton is planning a new home for the Hub Clothing Store on the northeast corner of State street and Jackson Boulevard, which will be the tallest commercial building in the city—twenty-two stories. It will represent an investment of \$2,000,000.

The territory just south of the so-called "Loop" district is developing splendidly. Charles C. Heisen is about to erect in Harrison street, running through from Dearborn to Federal street, a 22-story structure, chiefly of brick and terra cotta and fireproof throughout. This building is to be ready within a year, and the first permits already have been taken out. When completed the cost will approach \$2,000,000. Also in Harrison street, but a block to the west, Arthur B. Jones is to put up a 12-story structure of somewhat similar construction so far as material goes, at a cost of about \$500,000. This will stand on the southwest corner of Clark and Harrison streets, and on the northwest corner Rand, McNally & Co. are expected to begin the erection of their proposed great building early in the fall.

These are only samples of the big buildings being talked or pushed.

The result of all this has been a tremendous "run" in brick orders, and already there is difficulty in keeping pace with the demand. This is true in all lines, including face and fancy brick. Taking for example the common brick situation, we are told that the Illinois Brick Company had on hand at the close of the last season 120,000,000 common builders, with orders to be filled for 83,000,000. By the end of January the stock had gone down to about 100,000,000 and the orders had gone up to about 2,000,000 more than that, and within another month it was seen that it was going to tax the capacity of the company's many plants to the limit to keep pace with the demand. With a view to increasing its capacity from 12 to 15 per cent in order to meet the demands of the season, this company recently has purchased from the Harms Brick Company twenty acres near Glenview, on which is located a small brick plant with a capacity of 110,000 bricks a day, and a larger plant near Bolton, with a capacity of about 225,000 bricks daily. The National Brick Company, another large common brick producer, also reports orders largely in advance of a big producing capacity. It is estimated that all

told more than 1,000,000,000 common builders will be put onto the market from the Chicago plants alone this year.

Verily, the season hath all the earmarks of being one "hummer."

SCRIP.

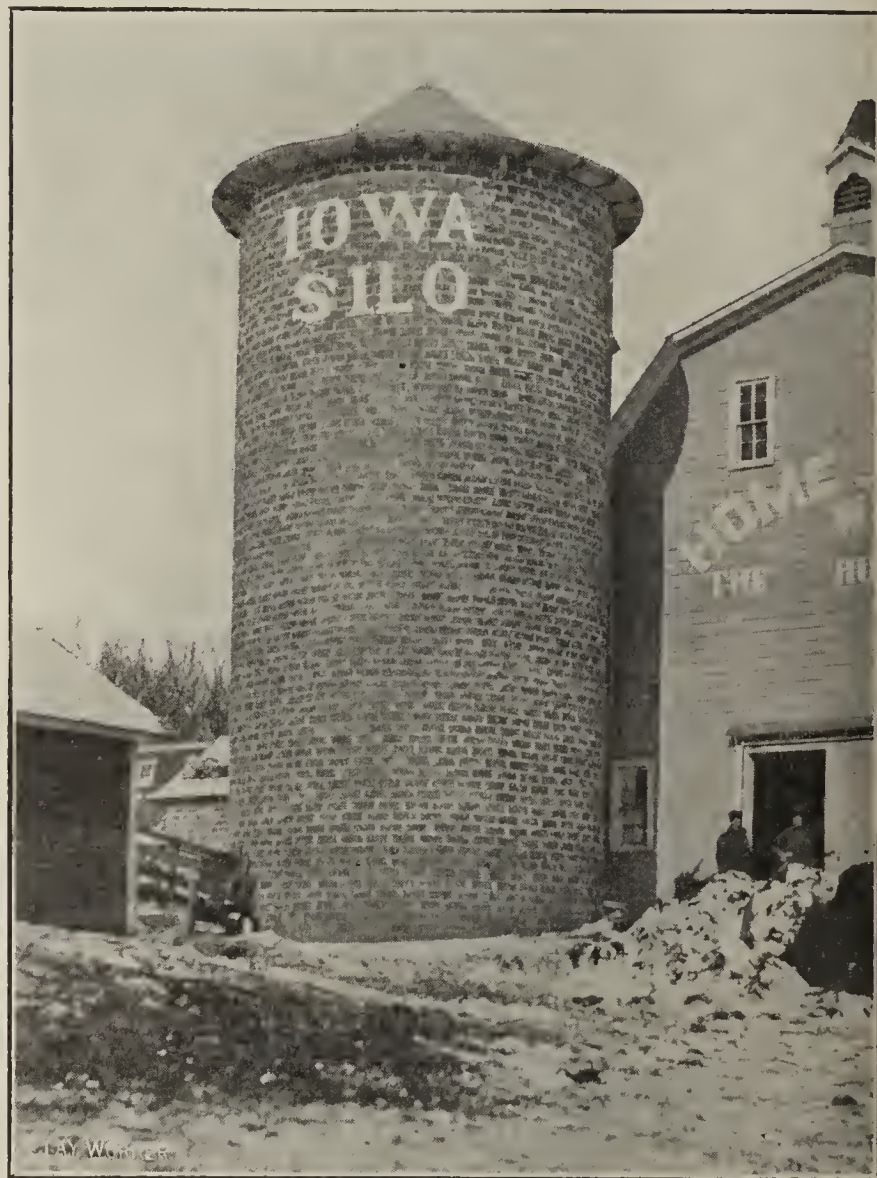
Written for THE CLAY-WORKER.

MAKING SILOS OF CLAY.



THE RECENT rapid change in the relative cost of wood and masonry seems sufficient to have revolutionized building. This has been partially prevented by the lack of knowledge of the new materials and the tendency of humanity to jog along in the same old rut. There is ample talent in existence to solve the problems which these conditions bring about, but it takes time.

The man that raises the crops knows that in order to even



Silo Built of Hollow Clay Block.

make expenses and interest on the investment in the land of prevailing high prices, he must market more stuff than he did ten years ago. All intelligent and reading farmers also know that the use of a silo will help very largely to bring about the changes necessary in the production of profit from high priced land. The use of the silo not only enables the farmer to realize practically twice the nutritive value from the corn crop that the old methods permitted, but it also enables one to keep twice as much stock to the acre as is the case without it. This stock increases the fertility of the land. In this way the products of the soil are marketed in a more condensed form, thus reducing the loss from the soil and at the same time yielding greater profits. However, practically all that the farmer knows concerning the building of silos is what he sees on his neighbor's farm, is told by an agent or reads in his papers.

On the other hand, the clayworker realizes very fully the great possibilities of hollow block construction, but seldom

is acquainted with the need of permanent silos at a reasonable cost. Thus the supply and demand very often miss connections.

The writer, being connected with the Agricultural Experiment Station of Iowa, has for several months been privileged to work upon this particular subject of silo construction, and with the help of his friends of the college, and clay industries, the building of thirteen silos of the following description have been erected and used.

The most common size is 16 feet in diameter, inside, by 35 feet in height. The walls are 4 or 5 inches in thickness, laid up in cement mortar and thoroughly reinforced in the mortar joints. The door frame is composed of reinforced concrete, which is thoroughly connected with the reinforcing system of the walls. The roofs have generally been made of reinforced concrete, and the doors which are not permanently connected in any way with the building, are made of wood. Thus, all parts of the structure are made of the most permanent of building materials, and the doors, when decayed, may be replaced at a cost of but \$5 or \$10. This replacement need not occur oftener than every five or eight years.

The cost of these silos has in no case been greater than the average quality stave silo, which is on the market today. It serves the purpose at all times and in all cases and does not require the care for maintenance, neither does it deteriorate so rapidly.

A visit to all of these silos during the latter part of the extremely cold winter showed conclusively that the block walls are perceptibly warmer than ordinary stave construction, and does not so readily permit the freezing of the silage.

The most satisfactory size of material used has been 4x8x12-inch hollow blocks, built approximately to a circle of 8 feet radius. The banding of these blocks has been accomplished by a very slight variation of the standard machines, thus increasing the cost of production of the material practically none. The only difference between the price of this material and the standard is, that the silo blocks must all be very hard burned on account of the fact that they are subjected to the worst of weather conditions.

The accompanying photograph gives a very good idea of the appearance of one of these silos. During the coming summer several silos will be built, which will serve not only as silos, but as towers for elevated supply tanks.

OKLAHOMA GEOLOGICAL REPORT.

Mr. L. L. Hutchison, Assistant Director of the Oklahoma Geological Survey, has just sent to press a special state report on the asphalt, oil and gas deposits of Oklahoma. This report is divided into two parts. In part one, Mr. Hutchison gives a general map which shows that portion of the state in which asphalt occurs and the region where it is likely to be found. It also contains a geological map of the asphalt-bearing district, and one showing the exact location of nearly one hundred known deposits, all of which have been visited by the author or his field assistants. This part of the report is closed with a chapter on asphalt paving, which contains invaluable suggestions to cities and towns which contemplate paving.

Part two is devoted to oil and gas. After reviewing the history of the industry and discussing the various theories of origin and accumulation of petroleum and natural gas, Mr. Hutchison discusses the geology of the Oklahoma petroleum and natural gas fields and closes the work with a chapter devoted to the latest Oklahoma statistics and a review of past and present conditions in the field. This section of the report is illustrated by a general map showing the present developed areas, probable territory yet undeveloped, and those parts of the state where it seems possible that oil and gas may be found and by a geological map of the oil fields and detailed maps, on a scale of one inch to the mile, which give the exact location of every well drilled in the various important fields prior to 1910. This report may be had upon application as soon as it is off the press.

THE BUILDING BRICK ASSOCIATION OF AMERICA.

THE WORK of this Association is progressing in a most rapid and satisfactory way.

Field agents are at work canvassing the important brickmaking interests of the East and about one hundred and fifty members have joined, with an aggregate membership fee of considerably over \$10,000.

Some of the largest brick manufacturers in the world, both common and face, are now identified with this movement. Membership is solicited from all manufacturers and dealers in burned clay brick, whether they be large or small, and the fee of each member is graded in proportion to the number of his brick manufactured.

The Association has just brought out its second edition of "A House of Brick for Ten Thousand Dollars." This book contains 64 pages, including 41 designs of charming brick houses, with general floor plans, together with four strong, interesting articles on the advantages of brick construction, both from an artistic and a practical point of view. The price of this book to members is 15 cents per copy, and to the general public 25 cents per copy. This book can not fail to awaken great interest in the public mind. It is the first attempt on the part of the brickmaker to present his wares to the public in a comprehensive and attractive manner. The designs have been supplied by many of the best house designers of the country, and wherever the book has gone it has aroused enthusiasm and approval on the part of the architects.

The second book of the Association, "A House of Brick for Four Thousand Dollars," is now in process of preparation and ought to be ready for distribution about August 1.

A pamphlet on the utilitarian value of brick, entitled, "A Revolution in Building Materials," by Henry Sterling Chapin, will be ready for distribution July 1. This book will be distributed broadcast to every man and woman who desires a copy. This book is full of strong, convincing arguments, and discusses, among other things, the following advantages of brick, viz.:

Brick is fire proof, repair proof, free from depreciation. The brick house is warm in winter and cool in summer; is artistic, full of dignity and commands admiration and respect. The brick house is not only salable of itself, but adds to the value and salability of the land on which it stands. It is a good asset—something you can safely invest your money in. The brick house is not expensive. While the first cost may be from 6 to 10 per cent more than frame, in the long run it is the cheapest house because of the freedom from repairs and depreciation. All of these facts and many more are forcibly brought out, and the book can not fail, if properly distributed to the building public, to bring a vast amount of business to the brickmaker.

Actual houses of various sizes, which have been constructed of brick will be illustrated in other forthcoming literature, giving location, photographs, general floor plans, detailed cost of erection, etc. This book will prove all that is claimed for the cheapness and economy of brick construction.

The Directors of the Association will hold their semi-annual meeting in Pittsburg, Pa., on Tuesday, June 7. Of the twenty-one directors, representing all sections of the country and all phases of the brick business, a large proportion have already signified their intention of being present. At this meeting definite plans for an advertising campaign will be discussed and decided. It is therefore very important that all the subscriptions possible be obtained before June 1st.

Mr. Brickmaker, the work of this Association is your work—it is to build up your business, assist you in selling more brick at a higher price. If a good salesman offered his services to you at a trifling salary per year, could you afford to refuse him employment?

This Association is a salesman and, in the long run, will be vastly more efficient to you than any single salesman, however smart he may be. The reason is this: We shall certainly create a new market for brick; we shall induce people to build of brick who formerly built of wood; we shall make a new line of customers for you. This is bigger and broader work than that undertaken by any ordinary salesman. An

ordinary salesman soliciting business, directs his efforts largely to getting an existing purchaser away from his competitors. We will make new purchasers—people who never thought of building of brick until we educated them. Is not this a valuable adjunct to your business? Can you afford to save the small annual membership fee at the cost of such a service?

If you do not believe that new customers can be created, consider a moment the following letter recently received from a party in Indianapolis:

"I am building a frame residence at the present time and would have considered brick had I had the proper information on the subject. I am a great admirer of brick for the construction of residences."

This man is not the exception—he is the rule.

Let us go to work to educate the public. Send in your subscription at once to Room 1614 Flatiron Building, New York City. If you have not received the prospectus of this Association, giving details as to membership fee, send for one at once.

THE BUILDING BRICK ASSOCIATION OF AMERICA.

Room 1614 Flatiron Bldg., New York City.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NOTES.

DURING THE latter part of April and up to the present time in May, the brick manufacturing business has continued to show considerable improvement in practically all branches of the industry. And this has been in view of the fact that the weather has not been nearly so favorable for outdoor construction during April and May as it was during the entire month of March. In fact, it has been quite a wet early spring.

So much outdoor construction had been started during the fine weather, however, that but little of it has been held up or delayed on this account. This is particularly true in the case of paving, of which there is already a large amount being done, blast furnace and stove repairs at the large mills, and sewerage.

The business in refractory brick has been very heavy, and all of the plants engaged in the manufacture of this class of brick in this district are being operated to about their full capacity. There has been quite a lull in the pig iron market since the middle of April, and the owners have taken this opportunity to make repairs that are very badly needed in some cases, and, as a result, the reserve stocks of blast furnace and stove lining bricks that are usually carried at such plants are being used, while the furnace interests are placing their orders for new linings to be stored around the mills and used in case of emergency. There are also a large number of orders being placed for high grade brick to be used in various parts of the steel mills and in open hearth and Talbot furnaces, and the great bulk of this business is being placed with Pittsburgh manufacturers of high grade silica brick.

There have been a large number of good street and road paving contracts placed with contractors in this end of the state during the past few weeks, and as the stocks of brick carried by paving contractors are never large, they have started placing some very good orders for all kinds of vitrified pavers, hillside brick, etc. The manufacturers of these brick have had their stocks pretty well cleaned out during the winter, and since the first of the year have been making every possible effort to build their stocks up as large as possible in order that they might be able to make immediate shipments during the busy season this spring and summer.

Practically the same condition applies to the building brick trade, there also being a very large demand for this class of brick, both in the common red and in the pressed and other better grades. Stocks are very low, and there seems but little possibility of manufacturers being able to increase them for some time at the present rate of shipments. Building is lively here, and the number of brick residences, apartments and other types of the better class of buildings

that are being built is much greater than was the case just a year ago. There have been few large structures, and none of any great size, so that the volume of building so far has been principally confined to the smaller business buildings, stores, apartments and residences.

The fireproofing business has shown heavy gains, and some large contracts from various parts of the country have been placed with local concerns, which are the largest in this line in the country. Several of the largest contracts placed go from here to the Pacific Coast, especially to Portland, Ore., and Tacoma and Seattle, Wash.

Sewer pipe orders and sales have shown marked increase since our last letter from this district. The leading factor in the manufacture of this material has placed several of its plants on full time, and in the course of a few weeks, the same schedule will be adopted by others. Much new sewerage will be done this summer in all parts of this state, and this means that the bulk of this business will be placed here, and assigned to the plants in Western Pennsylvania and Eastern Ohio.

The office of the Pittsburgh and Western representative and correspondent for THE CLAY-WORKER, which for several years past has been in the Commonwealth Building, Pittsburgh, has been moved to the new Henry W. Oliver Building, which has just been completed, and which is the largest and finest office structure not only in this city, but between New York City and Chicago. Here the news letter from this part of the state will be prepared monthly by George D. Steele, as during the past four years, and all information for same, news items, changes, etc., should be addressed to room 2327, or phoned to Grant 3313, Bell telephone. Every effort will be made to improve the columns from this district, and much assistance can be given by the local manufacturers if they will call up the writer or send items for publication.

The announcement was made on May 1st by the Bickford Fire Brick Company that on and after that date the general offices of the company, instead of being located as in the past in Pittsburgh, would be located at Curwensville, Clearfield county, Pa., where the big plant of the company is located. The plant is a comparatively new one, having been built but a couple of years ago, and the company has already found that it is too small to take care of its business. It was then decided to build an addition to the main building and to erect ten additional kilns. Contracts for these improvements have been awarded and will be pushed to completion as rapidly as possible. The addition to the main building will be 100x304 feet, which will make the total length of the building 556 feet, and with the addition of the ten new kilns, the plant will have a total of thirty-two new kilns, and a total capacity of over 100,000 9-inch brick. Orders for a large amount of new mechanical equipment have already been placed, and others will be awarded during the summer.

The Bloomsburg Brick Company has been formed at Bloomsburg, Pa., and incorporated under the laws of the state of Pennsylvania. The authorized capital stock of the company is \$30,000, and the company will operate a plant for the manufacture of building brick in or near Bloomsburg. The incorporators of the new concern are W. R. Kocher, George L. Low, J. W. Young, J. E. Shuman, H. R. Mears, Myron I. Low and W. W. Swengel, all of whom are well known business men of Bloomsburg.

The Glenwood Brick Company, of Erie, Pa., has been incorporated under the laws of this state, with an authorized capital stock issue of \$40,000, and will engage in the manufacture of high grade building and paving brick at Erie, Pa. The incorporators named are James A. Paradine, Thomas J. Paradine, Henry J. Conrath, George E. Kirchner, James F. Kirchner, Edward W. Constable and Charles A. Constable, all of Erie, Pa.

The St. Charles Brick Company's plant between Kittanning and Redbank, Pa., was totally destroyed by fire, not only the buildings, but the entire equipment being a complete loss. This works was the only industry in the vicinity and it has been decided to rebuild the plant at once at a cost of about \$20,000.

Frederick Gwinner, Jr., one of the best known general and bricklaying contractors in Pittsburgh, died at his home, 2621 California avenue, North Side, the latter part of April, aged

54 years. Mr. Gwinner was also a contractor in the National Fireproofing Company, as well as a large stockholder in this concern. He had been ill but a few days, taking a severe cold, which rapidly developed into pneumonia, which resulted in his death.

The Clearfield Brick Manufacturing Company, Clearfield, Pa., has increased its capital stock from \$50,000 to \$450,000. The company operates a large plant at Clearfield, and owing to the rapid increase of its business is forced to materially enlarge this plant. During the coming summer the large addition will be built and equipped with the finest brickmaking machinery at a cost of several hundred thousand dollars.

Samuel E. Duff, a well known consulting and designing engineer of Pittsburg, and who does considerable work in designing brick plants, has found it necessary to secure larger quarters, and is now located in Rooms Nos. 704-707, inclusive, Empire Building, Pittsburg.

The Harbison-Walker Refractories Company, Farmers Bank Building, Pittsburg, has been awarded the contract for the refractory brick and shapes for the five new hot blast stoves being erected at the Lucy Furnace plant of the Carnegie Steel Company. The company has also been awarded several smaller contracts for stove and furnace linings and general repair work by the Carnegie Steel Company and other subsidiary concerns of the United States Steel Corporation.

A. SMOKER.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BRICK PRICES have remained stationary for the past month. There has been an excellent demand, and the demand has been met with a sufficient supply, including the brick made in the city and that which has been shipped in. There is every reason to believe that the demand will continue,

and all handlers of brick are working to keep the market supplied, so there need be no delay on account of not getting this material. The present price is one which shows a profit, and it is only a question of turning out the brick fast enough to keep up with the demand, for all are anxious to make as many as possible in the least time, so the plants can make a good showing for the year.

During the fiscal year of this city, which ended with April, according to the report of the Superintendent of Buildings, there were 3,996 building permits issued, and the estimated cost of the buildings on which the fees of the department were collected was \$13,991,854, while for the previous year the number of building permits was 4,108, and the total value \$11,308,339, thus showing a decrease in the number of permits, but an increase in the value of the buildings erected. This increase is accounted for by the large number of fireproof structures erected in the past year. During the coming year even greater things are expected in this direction.

Some builders are of the opinion that there will never be a lower building record again than was made last year in this city, and base their belief on the fact that there will be an immense amount of building on account of the change of location of the Union Depot, and by that time the river navigation will be an accomplished fact, and the growth of the city will be steady and the natural increase in an increasing population will cause the building operations to continually grow greater than at present. Builders who are afraid that the future is not so good admit that the factors mentioned are strong ones in the upbuilding of the future Kansas City, and that they may cause such a demand for property that building operations may continue as predicted, and at the same time they point to the fact that the cost of building is constantly on the increase, both in the matter of material and

work, and they are afraid that rents will not advance in proportion, and if this is the case, of course, building investors will at once discontinue operations and will turn their attention to other channels of investment and this will cause a big slump in building operations until the cost of labor and material adjust themselves and enable buildings to be again erected at a lower cost. If such a time comes, and the margin at present is admitted to be only a small one, it is stated that operations will be small for a considerable period, as no short change will produce the necessary results, and then when investors turn their attention to other channels they are slow to take up something once discarded as unprofitable.

There has been a little feeling of uneasiness on the part of such brickmakers as are using coal for fuel, as the supply in sight continues to dwindle and the coal strike continues. Most of the plants have been well supplied to this time, however, and the trouble seems likely to be settled soon. Such plants as are located within reach of gas are not worrying, as they can switch to gas as a fuel now, the supply being plentiful at this season of the year, and some have already made the change because they prefer gas as a fuel on account of the cheapness with which it can be handled as compared with coal.

The Pittsburg Brick Company reports that the new plant in Pittsburg is again turning out brick, and a larger production is expected. The contractors depending upon this plant for paving brick have managed to get along with what was on hand, but they are clamoring for a new supply, and will be glad to hear that the plant is at work again, the start having been made on April 25.

The Kansas City Hydraulic Pressed Brick Company reports all its plants busy and the entire output is being taken up as quickly as produced. This company holds a big advantage at the present time on account of owning so many teams, for it can make prompt delivery when others are forced to wait for hired teams to make their appearance, and teams are scarcer at this time than ever before and the conditions are bound to be even worse when the hot weather comes and materially reduces the volume of work of each team, as it always does.

Flanagan Bros. are working their plant regularly and make use of a great part of the output in their own building operations in various parts of the city.

The Lyle Brick Company is very busy taking care of the shale which is being uncovered by the rock-crushing plant operated by the same owners, and is finding a strong demand at both its yards.

The Eadie Building Supply Company is reporting a heavier demand than it ever enjoyed before at this season, and its only trouble is in finding teams to make delivery in time to keep from paying demurrage.

K. A. W.

FIRE PROOF ADDITION FOR CHAMBERS BROTHERS COMPANY'S FACTORY.

Chambers Brothers Company, manufacturers of brick-making machinery, recently awarded the contract for a three-story brick addition to their machine works, 52d and Media streets, Philadelphia, to be built on the west end of the present erecting shop. The new addition will measure about 65x80 feet, three stories and basement.

The walls of this building will be of brick, inside and out, from top to bottom, nothing but brick; fire proofed steel columns and steel girders for floor construction.

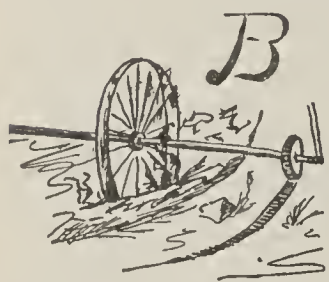
The purpose is to give a very considerable increase in floor space for erection purposes, as well as better facilities for handling product during the process of erection; also, fire proof storage for patterns, together with new office and drawing room facilities.

The building will be faced with red shale, side-cut brick, made on a Chambers brick machine.

Mr. Charles Balderston is architect and engineer of construction and Mr. Wm. R. Dougherty general contractor.

Written for THE CLAY-WORKER.

BUILDING OPERATIONS IN THE DISTRICT OF COLUMBIA.



BUILDING OPERATIONS in the District of Columbia and especially in Washington are now in full swing, and the indications are that at least \$25,000,000 will go into construction work this year.

The stocks of the common brick-makers about the National Capital have been low and, as a result, the prices advanced, but now they are all busy as bees getting out material for vast amount of building operations which are now going on or will be started in the near future.

Nearly \$5,000,000 was invested and nearly 2,000 more structures were built in the District last year than in 1908. Of the money invested last year, \$4,697,443 was used in brick buildings and the rest in seventy-eight apartment houses.

With the opening of several new sub-divisions, the plans of the beautification of the city by an improvement association, in tearing down old buildings and erecting modern ones and the many new apartment houses, it is expected the brick manufacturers will be working overtime to keep up with the demand.

Ground has already been broken for the erection of the largest hotel in the National Capital, which is to be known as the George Washington Hotel and Auditorium, and will practically be the largest building constructed here this year. The ground for the hotel comprises about three acres. It is the site where the old historic Convent of the Visitation on Connecticut avenue stood for many years. The plans, which are the work of Goldwin, Sterrett and VanVleck, of New York, show that every design is to be carried out in the purest colonial style. The general interior plan of both the hotel and auditorium keeps in view that the capital has become a social center of national importance; hence a provision of a large room and two small ones, which, on great occasions, may be thrown open into one. Here may be held conventions, national and international; concerts, operas, etc. The public rooms and spaces in an about the hotel will be on a similar scale. Between the auditorium and the wings and main building of the hotel is provided beautiful Italian gardens with an electrical fountain and terraces, and on the roof of the auditorium is a continuous garden. A like garden effect is created in front of the hotel, where the main building stands back from the avenue. The result of this plan is that the six hundred guest rooms of the hotel overlook either a street or a front garden. Many of these rooms will be arranged en suite for the accomodation of permanent guests. The building is to be erected by the Thompson-Sterrett Company.

Another large building proposition for this year is the rebuilding of the Riggs House into a combined hotel and theater at an estimated cost of more than \$600,000. The designs for the new building were made by J. H. deSibour, and call for the erection of a structure ten stories high of a beautiful ornate style. The site of the new building will include the present Riggs House and the property of the Metropolitan Bank, acquired by the Riggs estate several months ago. The theater will occupy the greater portion of the ground floor space to the third story of the building.

The Army and Navy Club will soon begin the erection of its new home at Seventeenth and I streets, N. W., which is expected to cost over \$500,000. The club house will be four stories and in addition to the lounging and dining rooms and library will have at least seventy-five guest rooms.

The new District National Bank building at 1406 G street is in course of construction. The plans for the building were prepared by Milburn, Heister & Co., and the construction

work is being done by William P. Lipscomb & Co., builders. The building will be ready for occupancy next fall.

An eight-story building is to be erected by the University Club at Fifteenth and I streets, N. W., during the year, to cost \$425,000.

The bill to regulate the height of buildings in the District of Columbia has passed Congress. It is designed to encourage the construction of fireproof buildings and to discourage the buidling of non-fireproof structures. Fireproof buildings on a business street under the new measure can be erected to the height of twenty feet in excess of the limit permitted by the present law. The heighth of non-fireproof buildings to be used for business purposes, is reduced from seventy-five feet to sixty feet.

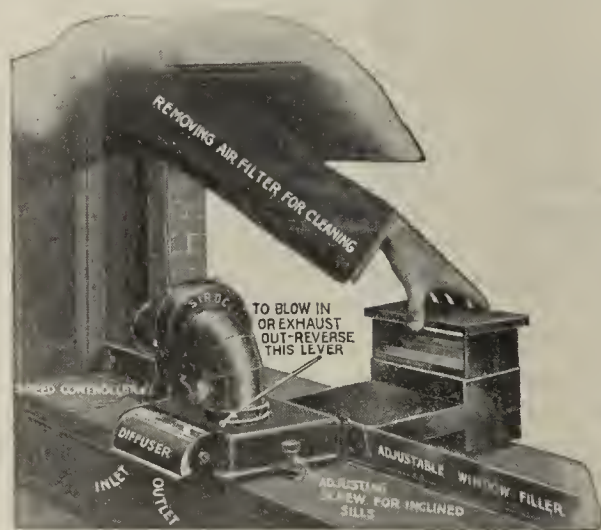
SENATOR.

Written for THE CLAY-WORKER.

ABSOLUTE VENTILATION THE YEAR ROUND.

THE "SIROCCO" Electric Fan and Air Purifier is a device developed by the American Blower Company, Detroit, Mich., and Troy, N. Y., using a "Sirocco" (trade-mark) standard, turbine type, impeller wheel but three inches in diameter as the basis for bringing the fan system of ventilation within the reach of every one using electric current. The small space occupied and the light weight combine to make the "Sirocco" device portable and attractive.

On account of the high efficiency of the "Sirocco" fan, the



"Sirocco" Electric Fan and Air Purifier.

electric motor is small (one-seventieth of a horsepower) and the electric current requirement is almost insignificant. The office boy or stenographer can install the complete outfit upon the window sill, without tools.

"Sirocco" will supply 5,000 cubic feet of fresh, filtered air every hour, diffusing the same throughout the room or in any direction at will, or deflected through radiator for winter ventilation. By the simple reversal of a small lever, without changing the position of the outfit or stopping same, "Sirocco" will exhaust from the room the dead "used-up" air in the same large volume. It is not a mere agitator of the air in an apartment and it goes beyond any other ventilating device yet made. The design has been perfected and patents applied for and manufacturing facilities are being hurried into shape for the production of these remarkable units by the thousands. The complete outfit consists, in addition to the "Sirocco" fan, of motor and reversing mechanism, an adjustable outlet nozzle for summer use, speed controller, a dozen filter cloths and window sash lock which prevents the window being raised from the exterior after the outfit is in place, and a rustless steel window filler adjustable to standard width sashes. There will be an immense demand for this complete unit as it is not simply a centrifugal fan and motor, but an equalizer which will produce precisely those atmospheric conditions necessary for alert mental and physical activity. The air supply is

purier than the outer air because of its being filtered. "Sirocco" enables the indoor worker literally to live and work outdoors.

This is but one of the latest applications of the famous "Sirocco" turbine fans, which are now being applied for the ventilation of kitchens, telephone booths, laundries and toilets on land, shipboard and on wheels. "Sirocco" fans are used almost to the exclusion of any other type for ventilating, cooling and mechanical draft on the modern battleships, cruisers, destroyers, etc., in the British, German, Italian, Russian, Japanese and United States navies. The U. S. S. North Dakota and Delaware, which, on recent trial developed such wonderful speed, did so under forced draft supplied by "Sirocco" blowers and the U. S. S. Florida and Utah, now under construction, are being equipped both for hull ventilation and mechanical draft with "Sirocco" fans.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

MAY 1 PASSED without serious disturbance in the building trade. Here and there sporadic disputes arose, but apparently all have been amicably adjusted. So far as can be seen work is progressing as usual. Fortunate indeed was it that employes decided not to strike. Any disturbance at this time would have been little short of a calam-



Window Equipped With "Sirocco" Fan.

ity. Capital has been timid during the past few years at best, and to have caused trouble now would have been to delay many important operations, frightening capital and perhaps forcing its withdrawal from activity. With all menace of this character gone, builders have only to proceed in their present conservative way and the year will witness a steady growth in building operations.

Brick manufacturers along the Hudson have determined upon restriction of output and their plants are operating to only two-thirds of their capacity. Last year the business was overdone and some makers lost money. This year they determined upon a more conservative policy and have decided upon restriction. They figure that to make 10,000,000 at a profit is better than to make 20,000,000 at a loss.

For a time most makers believed they could sell everything they manufactured, even though plants were operated to their full capacity; but that supposition has passed away and a more conservative policy has been adopted. It is said that if trade can be maintained on an even basis this year, no further difficulty will be experienced. Hereafter consumption demand will be to productive capacity. When that much desired period in brick manufacturing is reached, everybody will be happy and all alike will benefit.

The question of fire proofing, which reached such an acute stage under the last city government in New York can not be ignored under this one. What disposition will be made of the investigation begun under the McClellan administration

it is impossible to say; but fire proofing must go on, and some means will have to be adopted eventually to overcome the plainly marked tendency to utilize materials more or less unsafe. How this can be accomplished no one pretends to know, but when those who are working on the problem are so determined to succeed in ridding the city of the poor quality of fire proofing used, it seems certain that something will be done.

BURTON.

Written for THE CLAY-WORKER.

WITH THE BUFFALO BRICK MANUFACTURERS.



THE BRICK MANUFACTURERS of Buffalo report that business is all that can be expected. Building operations are more active than they have been in a long time and the activity is correspondingly reflected in the brick and tile trade. The outlook for the summer and for some time to come is the brightest, say the men who are in a position to know.

The shale brick plant that was constructed by the H. W. Haake estate in North Collins, N. Y., about ten years ago, and which burned about six years later, is now being rebuilt by a company incorporated under the name of the North Collins Shale Brick Company. The officers of the company are as follows: William Grapp, president; Henry Bender, vice-president; John Dietschler, secretary, and John E. Schuesler, treasurer. It is expected that the plant will be ready to fill orders by the middle of the summer.

The Lancaster Brick and Tile Company, of Lancaster, N. Y., just had a new Stewart kiln built for the burning of drain tile and hollow bricks. The company is ready to deliver material from its new kiln now.

The Lyth Tile Company, of Angola, which has its principal office in the Ellicott Square in Buffalo, reports that there is a great demand for all kinds of brick and tile for building purposes. The firm has all its output sold out for the next six months. Some of the large Buffalo buildings under construction that are being supplied with tile and brick by the Lyth Company are the new Lafayette Hotel, the Y. M. C. A. Hotel, the new buildings at the plant of the Pierce-Arrow Motor Car Company, the new Hahnemann Hospital and the Otis Elevator.

John H. Black, of the John H. Black Company, was out of the city for some time last month in the interest of the business of his firm. Mr. Black visited New York and Philadelphia.

The brick yard of Otto W. Werger, at Lakeview, N. Y., is now being reconstructed. Extensive alterations have been made. Henry Schaefer, of this city, will conduct the business hereafter.

Some of the new buildings in Buffalo that are now being supplied with brick by the Queen City Brick Company are as follows: The new Statler Hotel, the Y. M. C. A. Hotel, School No. 1, the new Mother House being erected by the Sisters of Mercy in Abbott Road, the Y. M. A. building of St. Mary's Church, and the new Bethel Synagogue in Richmond avenue. The big new plant of the Superior Motor Vehicle Company is also being supplied with brick by the Queen City Company.

Stephen Brush, who was formerly connected with the plant of Brush Bros., has been placed in charge of the Jewettville Brick Company's plant at Orchard Park, N. Y. George Morton continues as superintendent of the original plant of the Jewettville Company at Jewettville, N. Y. Nathaniel Finch, treasurer of the Jewettville Company, has been in poor health for some time. The John H. Black Company, of this city, will look after the selling end of the business hereafter.

George W. Schmidt is building a new brick plant at Boston, N. Y. It is expected that it will be completed shortly.

JOSEPH A. MCGUIRE.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

The Clay-Worker Ad Brings Too Many Replies.

Editor THE CLAY-WORKER:

We are receiving so many applications from the advertisement that we put in your journal that we can not find time to answer them all. Will ask that you take it out.

I am really surprised that there are so many men idle in the brick business.

Yours very truly,

BURKE BRICK COMPANY,

Ft. Smith, Ark.

By M. C. Burke.

Business Good at Bradford, Pa.

Editor THE CLAY-WORKER:

Enclosed find money order for \$2 to cover our subscription to THE CLAY-WORKER for twelve months ending April, 1911. We take pleasure in advising that business is and has been extremely good with us during the past year, and we expect to sell all the brick that we can manufacture during the balance of 1910.

We are pleased to extend a cordial invitation to any representative of THE CLAY-WORKER to visit us at any time, and will be pleased to entertain him to the best of our ability.

Yours very truly,

BRADFORD PRESSED BRICK COMPANY.

Bradford, Pa.

Hoosier Brick Manufacturers Promote Brick Business by Publicity.

Editor THE CLAY-WORKER:

We are sending you today under separate cover, marked articles from the Evansville Courier-Journal News and Democrat of Sunday's issue, containing articles on brick, copied from THE CLAY-WORKER.

We send you these to show you that we appreciate the articles you are publishing to promote the sale of brick and to show you that we will give them a wide publicity as far as this section of the country is concerned. We are using about everything you publish, as we have a contract for the season with all of these papers, including reading notices.

With best wishes.

Very truly yours,

STANDARD BRICK MANUFACTURING Co.,

Evansville, Ind.

Per John Andres.

More Light on Lamination Troubles.

Editor THE CLAY-WORKER:

We note a letter in THE CLAY-WORKER of April, 1910, signed "Neitzel," setting forth a cure for lamination. He suggests a new cause—choking of the auger, and also a new remedy—using a "patented steel-face auger," both cause and remedy being at variance with the usually held views on lamination. In replying, it is not our intention to enter into a long discussion of the subject of lamination, but we simply want to state that our observations are not in accord with those reported by "Neitzel."

It has been our experience, as state in a paper read by our Mr. Demmler at the last N. B. M. A. convention (THE CLAY-WORKER, February, 1910), referred to by "Neitzel," that there are many variable factors entering into the question,

and a certain combination will be found to give the best results with a particular clay. The behavior of the two clays mentioned by "Neitzel," a very sandy clay which chokes a cast iron auger, and a clay of a very plastic and slippery nature which slides over cast iron and hence does not laminate, is extraordinary and opposed to the widespread and widely accepted theory that the plastic, slippery clays laminate to the greatest extent. Here we might call attention to the remarks made by Mr. G. C. Stoll at the meeting of the Wisconsin Clayworkers' Association (THE CLAY-WORKER, April, 1910, p. 593), in which he says, "With the clay that laminates, I do not think it is so much the fault of the machinery as of the clay itself The smooth surfaces caused by turning of the auger come together and do not weld very well. If you can ruffle that up with grog, you can overcome it (lamination) to quite an extent." It will be noted that where "Neitzel" uses a steel (smooth?) auger, or wets his cast iron auger to get smooth flow, thus overcoming lamination, Mr. Stoll advocates the opposite, a rough auger and the use of grog.

We have discussed this matter with our engineers and have come to the conclusion that possibly "Neitzel" is writing about one kind of lamination and our paper, read by Mr. Demmler, was a discussion of the other type of lamination. We recognize two forms of lamination in stiff mud brick: First, circular, where there is a loose outer hull; second, concentric cone, where a vertical section through the center of the column shows inclined lamina and lines of separation. This latter form we attribute to the non-welding of the clay as it leaves the auger, but we have not yet given this question any extended investigation. What follows refers to circular lamination, which we discussed in the paper above mentioned.

Further experiments, not yet published, indicate that the clay used by us in the experiments described in our paper, welds after leaving the auger. The laminations in the brick would therefore indicate that the trouble arises in the die. The laminations are parallel with the sides of the die, going deeper at the corners where friction is the greatest, which is in accord with the theory advanced in our paper. "Neitzel" says, "The laminations caused by the die . . . always occur at the corners of the clay column and are always pulled back." By this we suppose he must mean rough edges or friction cracks, which occur at the edges of the column when the corners of the die are poorly lubricated. We should not call such cracks laminations.

"Neitzel" bases his preference for a steel-face auger on his claim that a cast iron auger becomes choked with clay. We have no reason to doubt his observations on his clay and using his machinery, but our experiments and observations have never indicated that there is any choking of the auger in any case that we have investigated.

Yours truly,

CHARLESTON TESTING LABORATORY,

Charleston, W. Va.

Paul E. Demmler, Chemist.

Dryers and Best Clay to Dry in Them.

To my American Brothers:

In the January number of THE CLAY-WORKER is a letter asking the opinion of an older man as to the best way of drying open bodies of clay or sandy bodies. Now, I have had to do with a great many bodies of clay in my experience, which extends over a period of thirty-five years, and I find that different bodies need different methods of drying. Some will not take any hurt if you put them in a hot dryer or on a hot floor right away, then there are bodies that would break and split all over them going through the same course. There is a body of clay that is very tough and plastic, also weak burning. Now, this body needs the most care of any body in use over drying, or it will crack all over the face of the brick and will also show lamination cracks. Of course, it does not come in the drying alone; you will notice that bricks made by this body will show surface cracks. In some cases they will not be noticed till they are burnt, but all the same, they are in the brick before the bricks are set. Now, the cause of this comes most in the make of the brick; it is not tempered enough and, therefore, there are two stiffnesses

of clay, and that means that the softest parts shrink a little more than the hardest parts, therefore showing the cracking. You can not give a weak and tough body too much tempering if you mean to get good results from it, as it will not absorb the water like an open body does. The best way to do away with this trouble is to have two mixers and over the two mixers a pair of small express rollers. By this process you get the cake of clay so fine that the Mixer No. 1 and Mixer No. 2 have more facility for finishing the temper of the clay before going to the machine for make. Then when the bricks are made and put on cars for the tunnel dryer, you want to put the cars in the tunnel so that they will catch the heat gently, say take out two cars a day of each track and put two in each day, then there is time for the bricks to get thoroughly well soaked and black hard before coming to end delivering them dry, which is always the hottest part of the tunnel dryer. Never empty the whole of one track right away, or you will give yourself trouble, as you then get your bricks right from the machine in the hottest part of the dryer, and this body will not stand it, as it wants plenty of time to dry.

Then there is the ordinary body, which is neither plastic, tough or weak burning. This body is the best for drying in the dryers, as it will stand much more heat putting on to it right away, but, then, to do justice to it, it should have plenty of time for drying, but there will not be the trouble with this kind of clay there is in the first, as this body will take the water much quicker and absorb into it, therefore, it gets properly mixed and does away with the trouble of cracking, either while drying or burning. But this body wants to be taken from the dryer the same way as in the first instance, by taking two or three from track and putting in the same each day, which gives the goods more time. If you come to think this matter over, you will find for yourself that this is the only way to get good results.

Now, there is the sandy body. This should not be dried in a dryer or you will take out what little ring there is in the brick, and that is not a great deal any time or under any process. This is not the only fault you will get, but you take out two-thirds of the nature by drying in the dryer. This body should be dried in the open as much as it can, or on a steam shed floor, with side of sheds open so that the steam that comes from them can get blown away. I will give you my reasons for not using a dryer for this body or class of brick. When you get them from six to eight deep on a car in a dryer the steam that comes from a body of bricks packed on a car like this is a great deal, and you will find that the bricks dry on top of car much before the middle. Then, with this body being of a sandy and open nature, it is taking the hot steam from under brick into itself and there are a great many different acids in clays of all kinds and a certain amount will come from them in the steam and the bricks being so open in the body are taking these until the bricks are all dry and the damage done by the steam spoils the quality of these goods. Brick should be made as good as possible. Sand-faced bricks in this country are thought more of than any faced brick made.

Now, I hope that I have made it clear to my American brothers regarding the unloading the dryer. Take from two to three cars out daily and put same number in; then the bricks get from wet to black hard gently, and will then take the heat without any harm being done to them.

Hoping this letter will enlighten my American brothers a little in the trade of brickmaking, believe me a well wisher to the American brickmakers, one from the Old Country,

H. W. H.

It is not exactly what we accomplish, but the show we are making, as compared to what the other fellow is doing, that goes to give us pleasure or make us most dissatisfied with our lot.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK MANUFACTURERS.

THE OLD ADAGE, "If you can't look outward, look upward," might have been an incentive to the brick manufacturers and builders of Philadelphia who are looking outward, upward and onward. Business seems to have taken well after the spring vaccination of sunshine and showers, and the green vegetables and strawberries seem to have cleared the throats of the worst pessimists. As for the optimists, well, who can find weights sufficiently heavy to burden their irrepressibility? God bless 'em.

The number of new residences in course of operation would suggest the improbability of fillers, the apartment house looming up in the near suburbs, but the apartments are usually leased ere their completion and the rows of houses early don their insignia of home, i. e., shades at windows, flowers in gardens, porch rockers, etc., for nearly all houses in the Quaker City are built with porches and front garden plats.

The North Philadelphia Brick Yard is busy supplying brick in large quantities for these various houses throughout the city. Thirty-two houses at Broad and Courtland streets; twenty-four at Fifth and Erie avenue; one hundred and thirty-two at Pike Road and Eighth street; one hundred and thirty-three at Cheltenham avenue and Sullivan street; seventeen at Eleventh and Westmoreland streets; the same number at Indiana avenue and Belgrade; two other operations call for brick to the tune of four hundred and twenty thousand. Besides these there are contracts for fifty-two 2-story houses at York Road and Sparks and sixty-eight at Wayne avenue and Seymour street. When a man can run off the above number of contracts and then some—fifty houses at Sixth and Olney avenue, twelve at Fishers' Lane, and a few small contracts surrounding the large settings, they need to have an output of 140,000 to 170,000 daily at the yard. We are wondering what the other manufacturers are doing. Well, the answer is almost the same thing, in a less extensive way, perhaps.

The Aldan Brick Company at Aldan, Pa., is doing its utmost to fill contracts for building operations at Overbrook, M. W. Young, builder; Garrettsford, B. F. Manly, builder; at Aldan, L. G. Humphreys, builder.

The beautiful surrounding suburban district of Clifton, Swarthmore, Lansdowne also show operations for which the Aldan Brick Company is serving brick. Then, too, at 82d street and Hancock, Jno. M. Kenney, builder.

Philadelphia suburban district reaches out like an octopus, embracing in all directions, yet there is land and more land yet to be utilized, leaving still sufficient farm land for cultivation.

Mr. Paschall, manager of the Leuten Brick Company, has sold the old Paschall homestead. It has been cut into building lots and the site will be occupied by sixty-five houses, which will, within a short time, look quite as if they had always been there and the old Paschall homestead will no doubt be forgotten. Thus does the new obliterate the old in all things.

The Leuten Brick Company is serving several operations in Germantown and Frankford; a mill in Kensington; a garage at American and Green streets, calling for one hundred thousand hard brick. Also a building operation at 58th and Delaney for forty houses.

The Philadelphia Brick Company mentions a few of its large contracts and forbears the mention of smaller ones. However, when one considers the large and elegant figures of the few, well, for instance, two hundred and sixty houses at 20th and Mifflin streets; one hundred and fifty houses at Ninth and Porter. This company is also serving six million brick for the Curtis Building, Sixth and Walnut streets.

Chas. A. Young, 24th and McKean streets, is serving an operation, 2-story houses at Ninth and Shock streets, another operation at 12th and Arch streets and a third operation at Third and Christian streets.

M. E. LOCKINGTON.

Written for THE CLAY-WORKER.

CLAYWORKERS' ASSOCIATION OF THE STATE OF WASHINGTON.



CLAYWORKERS' ASSOCIATION of the State of Washington was organized in Seattle on May 6th at the convention held for that purpose in the assembly room of the Seattle Chamber of Commerce. The attendance at this convention was far better than expected, and the response to the call of the committee which had this temporary arrangement in charge was very gratifying. Several letters were received from clayworkers who were unable to attend and, as a whole, the state was well represented.

The meeting was called to order by Mr. John Megrath, Chairman of the Arrangement Committee. Mr. James Gibson acted as secretary. After some preliminary discussion the Chair appointed a committee, consisting of Messrs. Power, Houlahan, Farnham, Hobson and Eastman to draw up the articles of organization. The first paper on the program was Publicity and Organization, by Mr. D. F. Power. The paper brought out the strong fact for the necessity of organizing the clayworkers of the state, and outlined in detail the work to be done. Architect James Stephen, former School Architect of Seattle, read a paper on Brick Public Buildings and Homes. He called attention to the fact that the brickmakers of Seattle did not pay much attention to uniformity of size, and that every brick yard had its own size, and that the building trade was greatly hampered by these facts.

The next paper on the program was Necessity of a Uniform Sized Brick, by Mr. T. G. Dennis. This paper was most ably read, and with some forcible examples of the different bricks made in question, the speaker drew home the absolute necessity of a standard size for brick. (This paper will be printed in full in our next issue). In a lengthy discussion of this paper, advisability of uniformity of brick was brought out. Dennis blames the brickmakers for the rapid advancement of concrete, and the nonuniformity of the brick is at fault in this respect. The meeting adopted a resolution to appoint a committee of five to report on the most feasible standard size of brick for the state of Washington. Mr. Niedergesaess then read his paper on Frost Proof Brick, and he pointed to the fact that hard burnt brick were not subject to this defect of being injured by frost. In a discussion it was brought out that Mr. Dennis claimed to be one of the first brickmakers who used the heat from his boiler stack to dry brick, and also that he uses the heat which usually passes out of a continuous kiln to dry his brick.

Mr. S. G. Dewsnap was the next speaker and gave a description of the mineral department of the state, and the analytical work in connection with the clayworking industries. Adjournment was taken for lunch.

At the next session Mr. C. H. Bebb, one of the leading architects of Seattle, presented a paper on Brick and Steel Construction. He pointed out the great advantages of the brick over concrete, and his paper was great encouragement to the clayworkers. In the discussion, a matter was brought out in which it was stated that concrete was the less damaged of any building material in the San Francisco fire; upon inquiry of Mr. Bebb if such was true, he stated that such statement was false.

Mr. W. T. Houlahan then read his paper on Brick vs. Concrete, and showed by statistics the many collapses of cement constructed buildings. Mr. F. W. Grant, Superintendent of Buildings of the city of Seattle, was next on the program with a paper on Brick and the Law. Mr. Grant pointed out that brick was building material which gave the department the least trouble of all. The meeting voted Messrs. Bebb and Grant a vote of thanks for their interest on behalf of the brickmakers. The last paper on the program for the first day was Technical Clayworking, by D. L. Farnham. Mr. Farnham reviewed what could be done in technical training and a course in a clayworking school.

As there was no further program for the second session,

it was decided that the report of the Committee on Organization be presented. The meeting voted that the name of the new organization would be "Clayworkers' Association of the State of Washington." Regarding the annual dues, it was brought out that some of the members present had an idea that the sole purpose of the meeting was to foster publicity, and that the committee was largely influenced in that report. The section as to dues was reported that they should be of a sliding scale nature and should amount to 1 cent per 1,000 brick, and terra cotta, sewer pipe and hollow ware in proportion. Mr. P. S. MacMichaels pointed out correctly that an arrangement of such scale for dues was not the purpose of the organization, and after a very animated discussion, it was decided to refer this matter back to a Ways and Means Committee for further report. A committee was also appointed to make nominations for the officers of the Association. No further business appearing before this session, it was adjourned to Saturday. In the evening the members present were invited to a theater party and many accepted.

The Saturday meeting was promptly called to order by Mr. Megrath. Prof. Bensen, of the Washington University, made an address regarding the possibilities of the university in taking up the course of clayworking. He mentioned the fact that the chemistry department was already equipped with some testing apparatus and that he wished that the clayworkers of the state of Washington would cooperate in getting students in the clayworking industries in vacation times.

The Committee on Nominations then made its report, which was unanimously adopted. Mr. E. D. Gates, of Seattle, president; Mr. T. J. Mackintosh, of the Little Falls Fire Clay of Tacoma, first vice-president; Mr. C. S. Ridge, of the Lake Union Brick Company of Seattle, second vice-president; Mr. James Gibson, of the Hill Brick Company, secretary; Mr. Robert Niedergesaess, of the Seattle Brick and Tile Company, treasurer, and Mr. D. F. Power, Mr. Jno. Megrath and Mr. W. T. Houlahan, directors. In the absence of Mr. Gates, Mr. Mackintosh took the president's chair. The report of the Ways and Means Committee was next considered. Mr. P. S. MacMichael made the report. The report suggested that the dues for the members of the Association would be an initiation fee of ten dollars and a regular fee of ten dollars per year. With the members enrolled, this would give the Association some \$500 to start work. The report further suggested that the Executive Committee appoint a committee of five to work out the publicity matter and that each member of the Association interested in this matter contribute ten dollars to help pay the first expense of this investigation. After some lengthy discussion in which Mr. Power stubbornly adhered to the idea that the Association was principally a publicity movement, it voted to adopt the committee report, and the members were enrolled accordingly. The report of the Committee on Uniformity of Brick reported that the best size would be 8½x4x2½, the size to be adopted by all Washington yards by November 1, 1910. This report was adopted after a very close vote. As there was no further business before the meeting, the president declared the meeting adjourned, subject to the call for the next annual meeting. The social feature of the convention was a banquet held in the Arctic Club on Saturday evening. About one hundred members and guests were present, and many prominent speakers were enlisted for the evening, Mr. J. E. Megrath acting as toastmaster. Rev. Dr. Mathews spoke of Bricks Without Straw; Judge Burke on Our Country and Government; Mr. M. J. Cheek, one of the oldest brickmakers of the state, spoke on the Brickmakers, while Mr. J. Blethen, of the Seattle Daily Times, spoke of the press, and the hearty support the daily press would give this movement.

List of Members of Clayworkers' Association of the State of Washington.

Lake Union Brick Company, C. S. Ridge.
F. W. Eastmand, Far West Clay Company, Tacoma, Wash.
D. F. Power, Pontiac Brick and Tile Company, Seattle, Wash.
Chas. A. Bartz, West Coast Brick and Tile Company, Centralia, Wash.
Frank Houlahan, Builders Brick Company, Seattle, Wash.
A. J. Stewart, Aberdeen Brick Company, Aberdeen, Wash.

James Gibson, Hill Brick Company, Seattle, Wash.
 F. W. Harper, Harper Brick Company, Harper, Wash.
 H. B. Elliott, Bay View, Wash.
 Nels Anderson, Abrahamsam Brick Company, Seattle, Wash.
 J. F. Hobson, Hobson Bros. Brick Company, Wenatchee, Wash.
 F. T. Farnham, Denny-Renton Clay and Coal Company, Renton, Wash.
 C. H. Beyer, Washington Brick and Tile Company, Seattle, Wash.
 Ed. J. Shaw, American Clay Machinery Company, Seattle, Wash.
 H. J. Votaw, The J. D. Fate Co., Plymouth, Ohio.
 R. Nidergesass, Seattle Brick and Tile Company, Seattle, Wash.
 E. B. Rawson, Queen Brick and Lime Company, Bellingham, Wash.
 W. J. Houlahan, Builders' Brick Company, Seattle, Wash.
 The Clay-Worker, Indianapolis, Ind.
 H. C. Applegate, Queen Brick and Lime Company, Bellingham, Wash.
 J. M. Brewster, Abrahamson Brick Company, Seattle, Wash.
 John Megrath, Washington Brick and Tile Company, Seattle, Wash.
 W. C. Mitchell, Seattle, Wash.
 T. J. Mackintosh, Little Falls Fire Clay Company, Tacoma, Wash.
 C. S. Barlow, Tacoma Trading Company, Tacoma, Wash.
 H. Lohse, Lohse Brick Company, Seattle, Wash.
 S. Geijsbeek, Northern Clay Company, Auburn, Wash.
 E. J. Duhamel, Washington Brick and Tile Company, Seattle, Wash.
 Paul S. MacMichael, Northern Clay Company, Auburn, Wash.
 T. G. Dennis, Pontiac Brick and Tile Company, Pontiac, Wash.
 J. A. Weaver, Superior Brick and Tile Company, Woodenville, Wash.
 H. N. Stockton, Superior Brick and Tile Company, Woodenville, Wash.
 D. B. Steele, Steele & Steele, Seattle, Wash.
 H. Shaffer, Everett Brick Company, Everett, Wash.

HEAVY DEMAND FOR SCHURS BURNERS.

The Illinois Supply and Construction Company, of St. Louis, Mo., is receiving numerous orders for its high grade Schurs Oil Burners. In a recent letter, Mr. Walter P. Grath, the president, reported that their business in this line during the past few months has surpassed all expectations. Every one who has placed an order with them has placed subsequent orders and all parties are highly pleased. Many complimentary letters have been received by them, one of which reads as follows:

THE NORTH MOUND VALLEY BRICK PLANT.

Mound Valley, Kan., April 19, 1910.

Illinois Supply and Construction Company,
 St. Louis, Mo.

Gentlemen: Your favor of the 18th at hand. In regard to the burners, will say that we were over at the Union Brick Company and Cherryvale Brick Company yards at Cherryvale and saw the burners doing the work and are well pleased.

You will please ship us at once: 54 Schurs Oil Burners, No. 2, designed for up-draft kilns, terms to be thirty days, as mentioned in your letter; also send by early mail blue print showing installment.

At this time we are putting in the tank room and pumping system, so kindly hurry the burners at once, as we want to be running again in two or three weeks.

Trusting to hear from you by return mail, we beg to remain,

Very truly yours,

NORTH MOUND VALLEY BRICK PLANT,
 Per L. Wade, Secretary.

In December the Illinois Supply and Construction Company sold ten No. 1 Schurs Oil Burners to the W. S. Dickey Clay Mfg. Company, of Kansas City, Mo. In March they received another order from the same firm for ten more burners. In April they received a third order from the same parties for twenty-four burners, and on May 4th, the fourth order came to hand calling for one hundred and thirty No. 1 burners. They have also received the fourth order from the Mound City Roofing Tile Company, of St. Louis, amounting to twenty-four burners.

This should prove conclusively to all clay manufacturers who are now using oil, or who contemplate using same, what

burner they should buy to get the best results. The Union Brick and Gas Company, of Cherryvale, Kan., is also using seventy-six of these burners in both their up-draft and down-draft kilns, and claim they get better results with them than they ever got with natural gas. This speaks volumes for the Schurs Oil Burners, for which the Illinois Supply and Construction Company is agent.

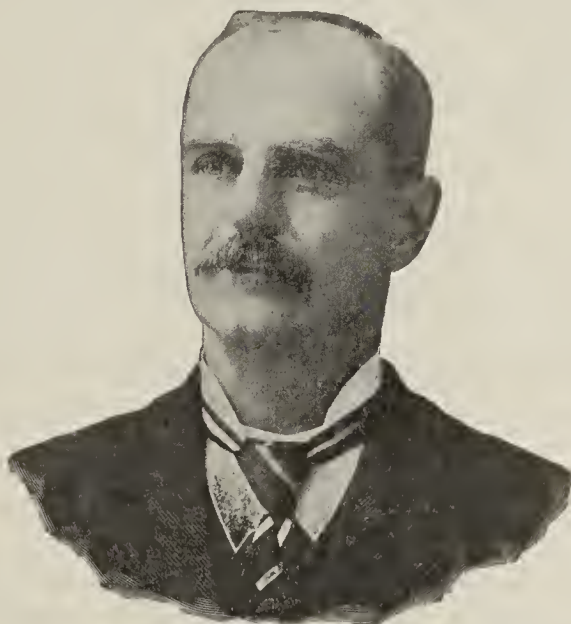
Over four thousand Schurs burners are in use at the present time, all giving excellent results. Not only are they well adapted to the burning of kilns, but are also used with much success for boiler purposes.

OBITUARY.

Death of a Well Known Iowan Clayworker.

Again we are called to chronicle the death of a prominent clayworker. Mr. O. T. Denison, of Mason City, Iowa, who, during his many years of active work in the ceramic field, won for himself a warm place in the hearts of all his acquaintances, died suddenly on April 7th of pneumonia, after an illness of ten days, and his death was followed only two days later by that of Mrs. Denison. All of his many friends, especially those in the brick and clay trades of the Northwest, feel deeply the loss of such a lovable character.

Mr. Denison had been prominent in the clay interests of Mason City for over twenty years, having been president of

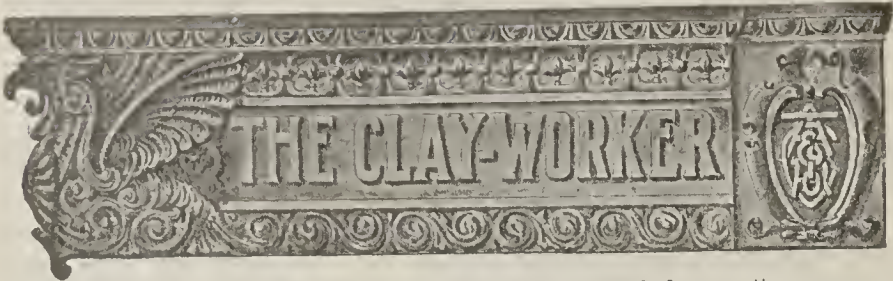


O. T. Denison.

the Mason City Drain Tile Company, president of the Mason City Sewer Pipe Company and president of the Mason City Brick and Tile Company. He was also president of the leading bank of Mason City and a leader in every movement for the advancement of the brick and clay interests. He was an ex-president of the Iowa Clay Manufacturers' Association and was known throughout the state as an exponent of the best things in the production of clay wares. Mr. Denison was the real founder of the tile industry of Mason City and to him more than any other man is entitled the credit for the dozen large industries which have been built up and enlarged the growth of the city.

Mr. Denison was born in Brookfield, N. Y., Aug. 28, 1847, and with his parents came west in 1857. He was educated in the common schools of Eau Claire, Wis. In 1863 he went to Mason City and first clerked in a mercantile store. He became deputy recorder and in 1870 was elected county recorder, filling the office with much credit for six years. From 1885 to 1887 he was mayor of Mason City. Later he purchased the old Mason City Brick Works and devoted his time and energy to the clayworking field until he had four of the best and largest plants of their kind in America.

He is survived by a daughter, the wife of F. E. Keeler, and a son, Lynn W. Denison, who will have charge of Mr. Denison's extensive clayworking interests.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIII.

MAY, 1910.

No. 5.

CURRENT COMMENT.

Sometimes the best way to economize is not to increase production.

* * *

And it is a town on the edge of Arkansas that enjoys the distinction of having all its paved streets paved with brick.

* * *

Sometimes it looks like the fires of reformers burn most brightly when the reformers themselves are in the mood for basking in the light thereof.

* * *

There are studies in the economy of brick yard construction and operation being offered in these pages that are worthy of consideration by every brick man.

* * *

And now the June bride and the valedictorian will vie with each other for space in the home magazines and prominence in the home affairs. Then will come the home building.

* * *

Speaking of porches, some of those floored with concrete are abominations, but a good porch properly floored and decorated with tiling is a thing of beauty and joy that more people should be making use of.

* * *

Proper tile drainage is fully as important a matter with the average farmer as the subject of irrigation, and sometimes both go hand in hand. When they don't, there is a wider territory and a greater number of people interested in and to be benefited by tile drainage.

* * *

There are a few building strikes on and a few more threatened at this writing, but so far the present season in the building world has been moving along nicely, and we entertain hopes that it will be a year with the fewest hitches and one of the best in point of work accomplished on record.

Some day that city that has streets paved exclusively with brick should be a sort of idyllic place to hold a meeting of brick manufacturers.

* * *

The frost king ruled awhile, but ruled more gently than his manner indicated, and later reports show that the agricultural districts, instead of being ruined, are still prosperous and the country is saved.

* * *

Saturday afternoon closing during the summer months is probably just as good a thing one place as another, but the idea is generally received with most favor in those localities where the usual program on Saturday afternoon is a lively baseball game.

* * *

The fish story crop ought to be more plentiful this year, because we have no big political campaign to take up the talent. The comet may fill in part of the time, but just the same, we are looking for something original and unique in the way of vacation tales and fish stories.

* * *

It is estimated by our government experts that about a tenth of our manufactured product is exported. It is likely that the percentage will increase steadily, because we continue to enlarge our manufacturing facilities even more rapidly than the needs of the domestic trade increase.

* * *

When a fellow accepts without question the doctrine that a man can not make or create business where none already exists, he is not likely to set the world afire in expanding the market for his product. It is the fellow with an idea of making two blades of grass grow where there is only one that does the creative business.

* * *

That is a big idea quietly launched by Secretary Knox which has for its purpose the practical disarmament of nations eventually. If we are all half as well Christianized as we profess to be, there should really be no need for maintaining anything more than police squadrons on the ocean, and the carrying to a successful issue this disarmament idea should bring more glory than winning a war, and it is easy to see how it will effect one of the greatest savings in the world, because one heavy source of government expenditures is maintaining a navy.

THE VENEERED BRICK HOUSE.

Seemingly there is more favor being shown toward the veneered brick house for modest and even fairly elaborate dwellings than was ever thought of before, and some times it looks like this is to be a popular mode of construction during the next season or two. The idea is not new by any means, that of building a frame structure with one layer of brick on the outside in place of the old wooden beveled siding or weatherboarding and the lath and plaster on the inside. Houses of this kind have been built for quite a number of years, but it is only during the past two or three years that the idea seems to be extending into what might be termed popular favor. It seems to find favor not merely in the matter of economy in construction by the use of fewer brick in the wall, but many show a preference for it on the ground that it furnishes a dryer house and that there are advantages in the hollow or dead air space between the outer brick wall and the inner plaster that is very desirable. It makes a substantial house and there are really no very strong objections that may be urged against its finding favor, other than it is not of the same fire resisting properties as a house built with solid brick walls. It is probable that in time we will develop from the veneered brick idea into the construction of more brick walls with hollow spaces between the inner and outer walls for the sake of the dead air space and its in-

ulating properties. Whatever may come in the distant future though, it looks like in the near future there will be a lot of favor shown to the veneered brick house, especially in the building of moderate cost homes.

The thing for brick manufacturers to give attention to in this connection to help themselves along is to encourage this form of construction in preference to the regulation frame with beveled siding for the outer wall. The difference in the cost of construction is very small, and if the prospective builder's attention is called to it, there is a chance that many of those who contemplate building next year will give up the idea of the beveled siding outer wall made of wood and use in lieu thereof the brick wall, thus saving the expense of painting and securing a better and more substantial house at a very small increase in the cost.

PRODUCTION OF CEMENT IN 1909.

A preliminary report or summary of the cement production last year has been prepared by Ernest F. Burchard, of the U. S. Geological Survey. According to this report, the total production of cement was between 61,300,000 barrels and 62,000,000 barrels valued at 85 cents a barrel. This represents an increase over the previous year of about 10,000,000 in quantity, but not quite so much in value, as values were unusually low last year. This increased production would be encouraging to the cement industry were it not for the fact that prices remained too low for fair profits in the business, which is evidence not so much of an urgent demand for cement as of activity in promoting new cement industries. Plainly there is an over production, otherwise the prices would be better, and the increase that was scored last year is the result of promotion rather than of the needs of the country. Cement is in large demand, there is no question of that, but quite a lot of the consumption is being forced instead of the consumption outrunning the supply and calling for more stock. The cheaper price on Portland cement has further reduced the quantity of natural cement made until the production of what was once an important item in the cement trade amounted last year to only 1,500,000 barrels. While conditions in the cement industry at present are rather discouraging to the manufacturers, because of the low prices, they furnish exceptional opportunities for those promoting cement products to supply material of this kind cheaper than formerly and probably cheaper than it will likely be in the future.

In other words, this low ebb in the price of cement gives the promoters of cement block and cement construction the lowest values they may hope to have, and if they can not make good under such conditions there is not much hope for them in the future, and strange as it may seem, we find building contractors today who claim that even under the present conditions of cement it is frequently cheaper to build a house foundation with brick than it is with concrete.

TO WHAT EXTENT?

There is a question coming up more persistently than ever before, or rather, a series of questions, relating to what extent a brick man should enter into the study of other things besides the making of brick. For instance, in order to properly encourage the use of brick for building in the community, to what extent should the brick manufacturer study the cost of laying the brick in walls and of building walls of different kinds of building houses of different sizes. Should he be prepared to elucidate in a very thorough manner, to tell right off the reel what it would cost a man to put up an ordinary cottage made of brick or what it should cost to build almost any size or type of house with a given kind of brick?

At first this may sound like going outside the pale of brick manufacturing and selling business, but we have only to look around us to see people with other kinds of building material doing these very things. Take the lumber people, for ex-

ample, and a lumber dealer running a retail yard hardly considers himself competent as a dealer until he can tell a man offhand the approximate cost of any size or plan of house. Tell him how much it costs to build it this way and that way, and what difference in cost between using a double outside wall and a single one, the difference between plaster board, byrkit lath and the regulation wall plaster, and even get into the brick domain a little by telling him offhand what it will cost to build a chimney of so many flues, what it will cost to build a foundation of certain depth and dimensions, what it will cost to put on a roof of this kind of material or that kind, and what these windows and those doors will cost him. In fact, the lumberman becomes a regular walking encyclopedia for the prospective builder and quite a percentage of his selling capacity depends on his ability to inform the people promptly and with a degree of safety about all such things.

BRICK MANUFACTURERS SHOULD GIVE MORE ATTENTION TO DETAILS OF BUILDING.

Sometimes it looks like probably the use of brick in the building world has been hampered somewhat because brick manufacturers have not given enough attention to all the details of construction and its cost and to the relative difference in cost between this form and that form of construction and this plan of house and that plan. For example, some prospective builder may come along and want to know what it will cost to put up a house with a frame and brick veneer. Then it should be up to the brick man to give him the exact cost of putting on the brick veneer and to give him along side of it also what it would cost to build a brick wall. Of course, any brick man can figure out the number of brick that will be required and the cost of the brick and some of the prospective builders can gain an idea from this of what the complete job will cost, but this is not always entirely satisfactory, because there are many things involved that may be overlooked. Probably many times when the use of brick in building could be encouraged if a brick man was as thoroughly prepared with information on the building subject as the lumberman.

MANUFACTURERS AS CONTRACTORS.

This brings us up to another proposition that is quite an important feature with lumbermen today. And that is building contracting. Some of the most progressive and most successful lumbermen handling lumber at retail are building contractors. That is, they not only sell lumber at retail, but they will take a contract to put up a house. Anything, in fact, from a modest cottage to a mansion and use any material that is wanted. This seems like enlarging and complicating a business until one is likely to get so many irons in the fire that some of them will burn. Yet, so conspicuous are the successes among the lumbermen who do contracting that at present there is quite a trend that way and more going into it all the time. Some simply father the contracting and building business by doing the figuring for and dividing the profit with the local carpenters and builders, while others maintain crews of their own and handle the work from start to finish.

There is probably two points to it worthy of special consideration by brick men. One is that through this contracting and building of houses in a community the lumberman or any other dealer in building material gets to know positively and specifically about the actual cost of doing the work in different forms. Sometimes he may discover ways to reduce the cost, but whether he does or not it gives him a fund of information that is itself of great value and a great aid in promoting business. The other point is that the man who does the building has a great influence on the welfare of material entering into construction, and if a brick man, in addition to making and selling brick, had an equipment and was prepared to and did build houses in his community he would be in much better shape to push brick, and the chances are about nine to one that there would be more brick used in his

community than there would be if he simply left it to contractors and builders to come and select brick in competition with other building material.

In fact, we are up against several questions of this kind. Questions as to what extent should the brick manufacturer enter into various other lines that are connected with the final consumption of brick. Probably different men will find the answers vary according to their local surroundings and probably some have not given any consideration to the questions at all, because they felt that they have enough to do to operate the brick business itself. Yet, there are several questions that every brick man should give consideration to and answer according to his judgment and local surroundings.

EMPLOYEES OF PURINGTON PAVING BRICK COMPANY OUT ON A STRIKE.

The plants of the Purington Paving Brick Company, at Galesburg, Ill., have been shut down for a number of weeks on account of labor troubles, with the exception of one factory. Early in May the company gave to the press the following statement:

"The power is not vested in the company to prohibit its employees joining any organization any more than it is to prohibit their becoming affiliated with any sect. Their right in this regard is not questioned, and no man will be refused employment or be discharged by the company because he is a member of any organization, nor will any man be refused employment or be discharged because he is not a member of any organization or is not willing to become a member of any organization.

"The company has the right to employ those whom it considers necessary for the successful operation of its business, and has the privilege of dispensing with the services of those whom it knows to be disadvantageous to its business interests. In all matters of employing men and discharging men the decision of the company is final.

"The company is ready and willing to meet its employees at any time, and endeavor to adjust the wage scale, hours of work or any other working condition which they do not consider satisfactory, and failing to reach an agreement with them, the company is willing to submit the questions at issue to the State Board of Arbitration for settlement, and when such a settlement is made, the company will enter into an agreement with its employees, individually, for any length of time desired by them.

"The wage scale of the Purington Paving Brick Company is from 6 to 25 per cent higher than that of any of its competitors, and the company believes it is to its advantage to have it remain so, for the reason that the company knows it has always had the best and most intelligent working force in the paving brick business; therefore, the company invites the men who left its employ at their own volition to come back to work at any time, under the above conditions, and it will give employment to as many as are necessary to fill the vacant positions.

"The company has always endeavored to give its employees a square deal in the past and it is not its intention to deviate from this policy in the future."

W. S. Purington, president of the company, has returned to Galesburg much improved in health, and it is expected will be able to do much toward settling the differences.

POETRY FROM WEST VIRGINIA.

The United States Tile Company, of Parkersburg, W. Va., is sending out a neat little card, bearing the following clever bit of verse:

"When God made man He made him out o' **CLAY**,
'Twas the best thing He had and He knew 'twould stay,
When He put in the **BACKBONE** He used a streak o' **SHALE**,
A runnin' from the thinkin' box down to the tail.

Now, if God used **CLAY** of which to build a man,
Men should build of **BRICK** and help along the plan,
And to make sure the job is well worth the while,
Use nothing for the **ROOF** but **U. S. SHINGLE TILE**.

U. S. TILE are made of **SHALE** and are the best
BACKBONE that **BRICK** walls ever had."

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 757.]

FOR SALE, WANTED, ETC.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.

T. B. TOWNSEND BRICK AND CONTRACTING CO.,
2 tf d Zanesville, Ohio.

WANTED.

An ideal location for a large brick plant in New York State of seventy acres, shipments by rail or water, awaits a practical brick man to investigate. A substantial interest in same will be given to a man of ability who can influence some capital to erect a plant in an enterprise he approves and manages. Address BOX 5—E. S., 51 cm Care Clay-Worker.

WANTED.

First-class machinist for brick plant making 75,000 stiff mud brick per day. Chambers machinery used; also have steam shovel and locomotive. Must have some knowledge of electricity, as we use electric power. Will pay two dollars and fifty cents (\$2.50) per day and a commission on brick made. Hours from 6 to 6. Machinery must be kept up after work hours. Address
FLINT RIVER BRICK CO.
5 tf d Albany, Ga.

For Sale, Wanted, Etc., Ads Continued on
Pages 749-750.

A SCREEN SENSATION

We are going to tell you all about this Screen in five words. It is

"BUILT RIGHT AND RUNS RIGHT."

If you are interested in screens and want a description of this Centrifugal Screen Success, we will mail you circular about it which tells the whole story, but in this page we are going to allow the men who are using this screen to tell you how they looked for repair bills, how they searched for flaws, how they expected troubles. They have been "through the mill." Just listen to them talk about it:

Coffeyville, Kan., Nov. 4, 1909.

The American Clay Machinery Company,
Bucyrus, Ohio.

Gentlemen:

It gives us pleasure to make this expression of our entire satisfaction with your two late patent Centrifugal Screens. We have two of these in operation, one installed about a year ago at our Collinsville, Oklahoma, plant, and the other at our Independence, Kansas, plant.

The former screen has more than paid for itself in the labor saved, to say nothing of the highly commendable dustless feature, and the fact that this screen is handling ground material for from 100,000 to 110,000 brick per day. It is quite noticeable that the tailings from this screen are entirely free from dust material, which should properly go into the brick column, and is thus unnecessary to send this material through the machines time and again before it reaches the column, as is often done with the old style screens.

The initial expense of the installation is much less than the old style screen on account of the reduction in the height of the elevator.

These screens shall be used exclusively by our four plants in due time.

Yours very truly,

COFFEYVILLE VITRIFIED BRICK AND TILE CO.,
W. G. Buckles, Treasurer.

Blairsville, Pa., Feb. 5, 1910.

The American Clay Machinery Co.,
Bucyrus, Ohio.

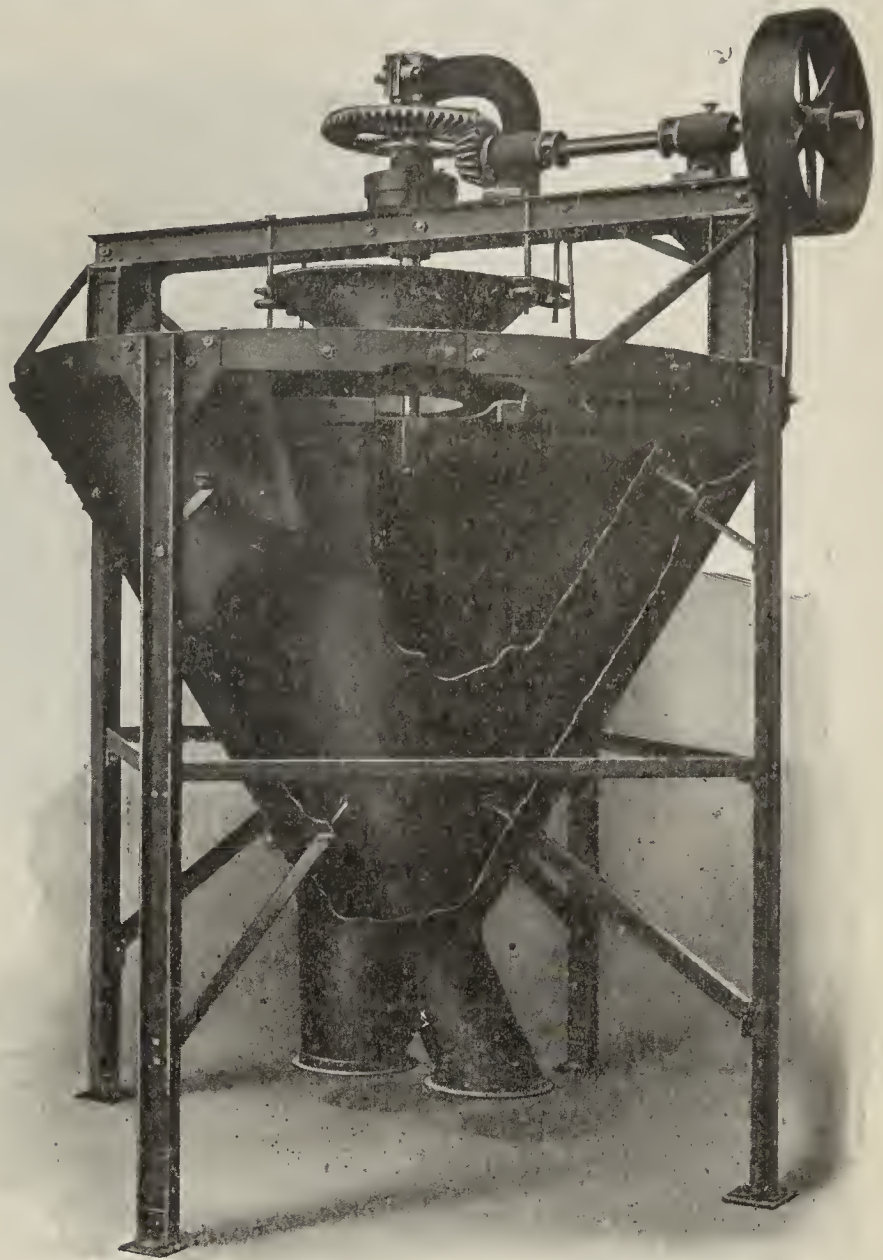
Gentlemen:

The centrifugal screen which we purchased from you screens our material very fast, but we are unable to give you the quantity passed through it during a given time. The fineness of the material is a little less than No. 10 mesh.

The screen has been working satisfactorily and the men who operate it are well pleased with the results received.

Very truly yours,

COLUMBIA PLATE GLASS COMPANY,
C. A. Simons, Asst. Secretary.



Bay City, Mich., March 7, 1910.

The American Clay Machinery Company,
Bucyrus, Ohio.

Gentlemen:

The Centrifugal Screen, No. 167, that we purchased from you has certainly surpassed our expectations. It has done everything that you claimed for it. We purchased a piano wire screen one year ago at a cost of \$175.00, and it cost us about \$5.00 for work and wire per week replacing screen. We have run your screen about sixty days now without one cent of expense, and from present indications we believe it will continue indefinitely to operate without any repairs whatsoever. The only thing that would ever need repairs to our mind is the screen plates, and those can be replaced by any man at the plant in fifteen minutes.

I would advise anybody who is using any kind of a screen other than a centrifugal to install the No. 167, as it will save the price of itself in giving you uniform clay, to say nothing about the repairs and expense you are put to keeping any other screen repaired.

Thanking you for advising us to install your Centrifugal, we remain,

Yours very truly,

MICHIGAN VITRIFIED BRICK COMPANY.

We build every machine and appliance required for manufacturing every kind of Clay Products by any process. Fifty years of experience and attention to the needs of the Clay-workers has built up a trade and an organization which is a credit to the Clayworking Industry. You are invited to use this organization and experience.

The American Clay Machinery Co.

Bucyrus, Ohio.

STEAM PIPE RACK DRYER



Interior View of Steam Pipe Rack Dryer.

The American Steam Pipe Rack Dryer is equipped with our patent Cable Delivery System and is the very best Dryer possible for economy of operation and maintenance. The cable system conveys the pallets of brick from machine to dryer and from dryer to kiln and will return the empty pallets. Its detailed excellence will be explained to you upon inquiry. Our Steam Pipe Rack Dryer is pleasing all users.

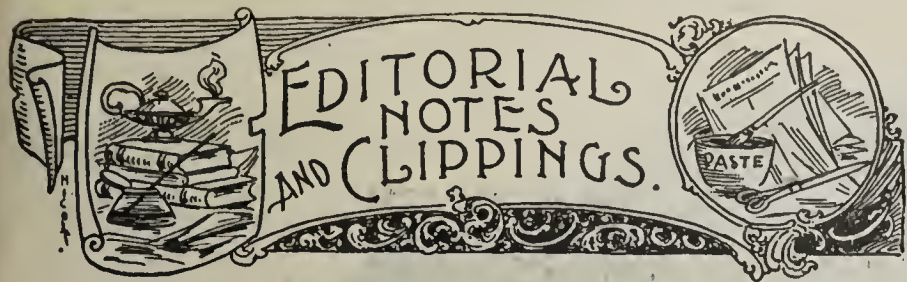
An enthusiast who investigated the steam pipe rack dryer has this to say:

"I am pleased to report that, without qualification, it is the best and most economical dryer that I have ever seen. It will dry the stiff mud brick made on the No. 6 Penfield Auger Machine—delivered on the steel pallets, nine brick on the pallet, brick not separated—in from eleven to twelve hours; and if the brick were separated on the pallets it will dry them in from eight to nine hours, easily. In addition to the brick not being separated on the pallets, they are very soft, and it would be impossible to handle them by hand or hack them on the cars, and the way the dryer does its work is almost unbelievable. If the brick in the same condition and close together on the pallets as they are, were placed on cars in a tunnel dryer of any kind it would take three or four days at least to dry them. It is customary, when they are placed in the racks, after they have stood for a day or two so as to stiffen up, for them to put men at work and separate them on the pallets, which, as you can readily see, entails quite an expense, and furthermore, damages the brick more or less. With the way that this dryer is handled, the brick are carried direct to the kilns on the pallets and not touched by hand until being set in kiln, which will greatly improve the quality of the brick.

"I consider this dryer more economical, by at least 25 % than any dryer I have ever seen."

We build every machine and appliance required for manufacturing every kind of Clay Products by any process. Fifty years of experience and attention to the need of the Clayworkers has built up a trade and an organization which is a credit to the Clayworking Industry. You are invited to use this organization and experience.

The American Clay Machinery Co.
Bucyrus, Ohio.



B. F. Wiggins, of Monroeville, Ala., wants prices on brick machinery.

R. J. Rhodes will establish a brick plant at Cartersville, Virginia.

Mack Applegate, of Glasgow, Ky., will establish a brick plant at Horse Cave, Ky.

Wm. A. Tieman and brother are erecting a drain tile factory at Buckskin, Ind.

The Cambria Brick Company, of Whiteford, Md., is for sale, clay beds, machinery and complete plant.

A. H. Denniston is erecting a small tile factory at Fergus Falls, Minn., which he expects to run right through the year.

Perry Hall and J. C. Meserve will establish at Steedman, S. C., a plant to make 70,000 brick a day and have bought machinery.

The Gulf States Brick Company, of Beaumont, Texas, filed an amendment decreasing its capital stock from \$250,000 to \$125,000.

Jonathan Creager, a veteran brick manufacturer and builder, and inventor of the Creager brick machine, died at his home in Cincinnati recently at the advanced age of 91 years.

The Union Brick Company, of Jacksonville, Fla., has been enjoying a season of prosperity. Their plant has a daily capacity of 50,000 brick, for all of which they find a ready sale.

The Glenwood Brick Company, of Erie, Pa., has been incorporated with a capital stock of \$40,000 by T. J. Paradine, E. W. Constable, J. F. Kirschner and others.

The Home Brick Company, of Cincinnati, Ohio, has been incorporated with \$50,000 capital stock by R. H. Coney, W. W. Coney, F. Lawson Morris, Frank Agnus and Charles M. Leslie.

Christian Gittlich, a pioneer brick manufacturer of Lancaster, Pa., died recently at his home in that city. He was 76 years old and had not been actively engaged in the business for some years.

The Polkton Brick Company, of Polkton, N. C., was chartered to manufacture brick and clay products. The authorized capital stock is \$100,000. S. K. Harris, S. W. Birmingham and others incorporators.

The Steubenville Brick and Tile Company, of Steubenville, Ind., has filed articles of incorporation with the Secretary of State. The capital stock is \$10,000 and the directors are Alvin Goodwin, John Crampton and William Crampton.

During the cold weather in April, the Sheldon Brick Company at Champaign, Ill., had 250,000 brick frozen and the Barr Brick Company at Streator had about 100,000 ruined by the frost, making it necessary to throw the brick back in the grinding machine.

Work upon the new plant of the Horseheads Brick Company, at Horseheads, N. Y., is progressing rapidly. It is stated, however, that it will be fully six weeks before the big plant is ready to begin operations. A large amount of new machinery will be installed.

The Utah Fire Clay Company, Salt Lake City, Utah, is making a number of improvements at the factory on South First street. Among these is the erection of a two-story office building, which will cost \$2,000. A two-story brick factory is also being erected at a cost of \$5,000.

Tucumcari, N. M., is soon to have a manufacturing establishment that will mean a great deal to the city. The Southwestern Brick Company, a stock company, incorporated with a capital stock of \$200,000, expects to begin work in the near future on a large plant for the manufacture of pressed brick.

With a view of terminating the bankrupt estate of the Montello Brick Works, of Reading, Pa., which has been pending before the United States District Court for more than two years, Edward D. Trexler, trustee, filed his final account with Referee Bertolet recently. It shows that there is \$1,833.30 remaining for distribution among the creditors in addition to

the \$176,063.93 which had heretofore been received from various sources.

Articles of incorporation have been filed by the Rose Hill Brick and Tile Company, Rose Hill, Iowa. The capital stock is \$10,000.

While tending one of the tile machines at the factory of the Webster City (Iowa) Brick and Tile Company, Frank Taylor lost his right hand.

The tile factory at Eagle Grove, Iowa, owned by E. H. Lyons, was burned to the ground April 26th. The loss was partly covered by insurance.

The Ferris Paving Brick Company, of Mechanicville, N. Y., has certified to the Secretary of State that its corporate name has been changed to the Mechanicville S. S. Brick Company.

A company is being organized at Palmer, Texas, with a capital of \$3,000 to make brick, promoted by Luke Harrison as president, F. J. Wilson, vice-president, J. R. Buck, secretary.

The Roah Hook Brick Company, of Coeymans, N. Y., has been incorporated with the Secretary of State with a capital of \$12,000. The directors are John H. Suderley, Conrad F. Suderley and Justin L. Bishop, of Coeymans.

A number of extensive improvements have been made in the plant of the A. C. Ochs Co., Springfield, Minn., including a wire cable conveyor for taking brick from press to drying racks. They are making a specialty of a hollow face brick.

The night watchman at the tile factory at Williamstown, Ind., was seriously burned about the head, face and hands recently by a gas explosion. He attempted to light the fire in one of the kilns, when escaping gas ignited. His injuries are dangerous.

The Catawba Pressed Brick Company, of Rock Hill, S. C., has been chartered with a capital of \$50,000. The officers are: W. N. Ashe, president; J. L. Sowell, vice-president, and S. N. Sowell, secretary and treasurer. The company will manufacture press brick.

The Kittanning Brick and Fire Clay Company sustained \$1,000 loss from fire, which was started presumably by tramps in a car standing on the siding ready to be loaded. Before the flames were under control they had spread to the stock sheds, resulting in considerable damage.

Valley Brick Company, of Charlestown, W. Va., has been incorporated to manufacture clay products, burn lime, deal in coal and building materials. Capital, \$25,000. Incorporators, John Strother, Thomas R. Moore, H. P. Cline and S. J. C. Moore, Charlestown, W. Va., and C. L. Robinson, Winchester, Va.

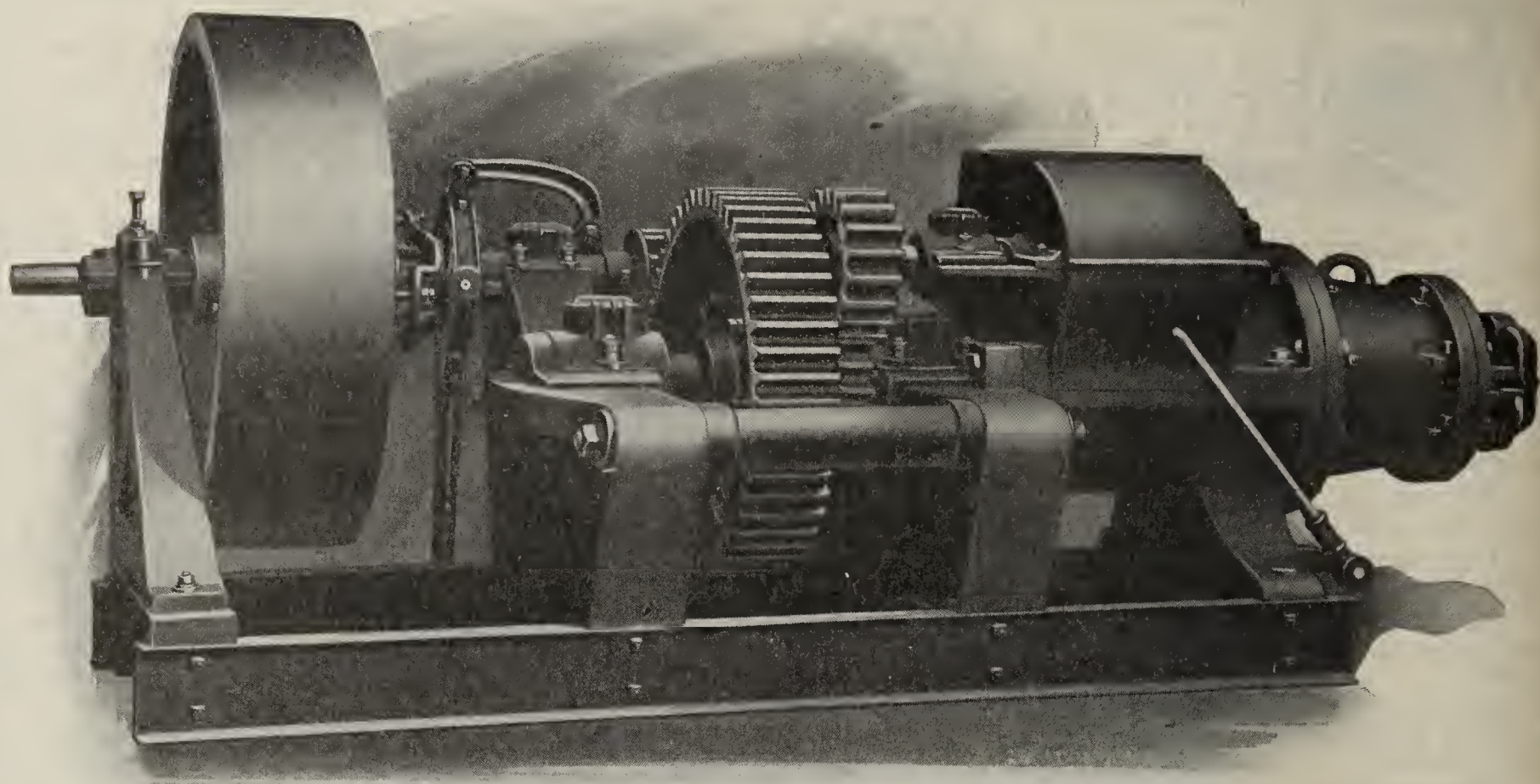
Ground has been broken for the erection of the brick plant of the Diamond City Brick Company at Wilkesbarre, Pa. The plant will have a capacity of 50,000 per day, and have the advantage of being located on the Pennsylvania Railroad. The kilns will be built so the brick can be loaded directly into the cars from the kiln.

H. Westegaard has leased the brick plant of the Devil's Lake Vitified Brick Company at Devil's Lake, N. Dak., and is getting same in shape for steady operation. Mr. Westegaard is a practical manufacturer and understands the business thoroughly and the fact that he has charge of the industry will be a guarantee that it will be a success.

Charles W. Schneider, John C. Schneider, D. V. Schneider, J. S. Schneider and Fred H. Schoedinger have incorporated the Schneider Brick Company, of Columbus, Ohio, with a capital stock of \$25,000. All of the incorporators are well known brick manufacturers and contractors and the corporation will take over the brick manufacturing business conducted by Charles W. Schneider.

As a result of a strike order issued by the Clay Workers' Union, 900 men employed at clay factories in and near Brazil, Ind., are idle and eleven big clay plants have been closed down. The Sheridan Brick Company's plant, Monarch Sewer Pipe Company, and the Clay Product Company's plant were closed on account of their employees refusing to work. Every indication warrants the belief that the strike will be a long one. The clay companies say they are selling their products at a close figure to compete with other factories in other localities and that they can not afford to concede the demands asked by the union. Furthermore, they point out that most all the yards of the clay plants are filled with stacks of brick and other clay products, which means that the local concerns

(Continued on page 741.)

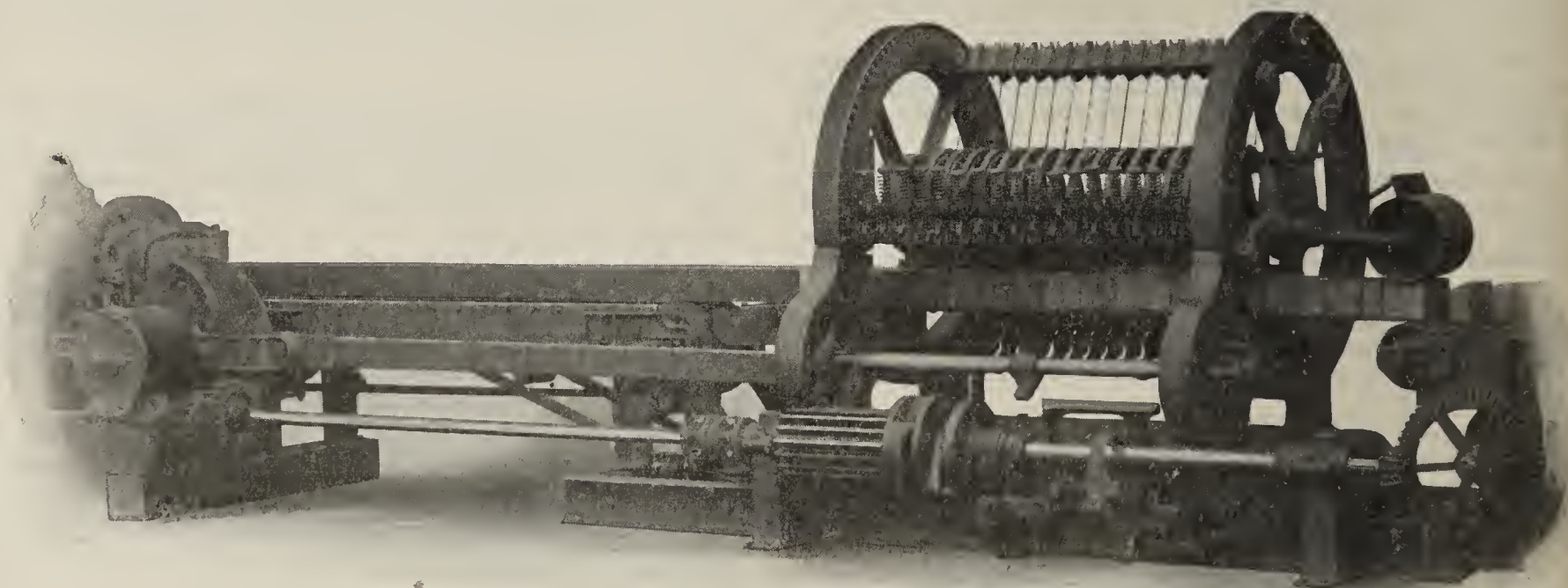


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammouth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 784-787.

EDITORIAL NOTES AND CLIPPINGS—Continued.

will be able to supply their customers with goods for some time without turning a wheel.

Messrs. Eastwood, Seagrove & Frye have purchased a site of land at Carthage, N. C., on which they will erect a small brick plant.

The plant of the Cincinnati Roofing Tile and Terra Cotta Company, Cincinnati, was destroyed by fire May 1st. The loss is partly covered by insurance.

B. R. Brown is building a steam brick plant of 40,000 daily capacity at Little Rock, Ark. He has an abundance of fine clay which has been thoroughly tested.

The Hammond Fire Brick Company, which was burned at Fairmount, W. Va., will build a new plant, fireproof brick buildings, and put in new machinery to manufacture 75,000 brick a day.

Charles H. Tobias, of the firm of Tobias & Sheridan, brick manufacturers of Hamburg, Pa., died at his home in that city, after a short illness. Mr. Tobias was 63 years old and had been in the brick business for forty years. His wife, a son and one daughter survive.

The Mariette Rustic Company, of Williamstown, W. Va., was incorporated with \$5,000 capital to manufacture gas logs from clay, headed by George White, Charles W. Schramm and Martin F. Noll, of Marietta, Ohio.

A company has been organized at Thomasville, N. C., to build a brick plant with 20,000 capacity a day and have five acres of clay land. H. V. Ragan is president; E. Kennedy, secretary, and J. E. Goode, superintendent.

The Todd-Birchy Brick Company, of Fort Payne, Ala., will spend \$200,000 in new buildings and machinery. Will put in two more down-draft brick kilns and two muffle terra cotta kilns for enamel ware. Charles Birchy is general manager.

A. D. Klein, formerly with the Cleveland Hydraulic Press Company, Cleveland, Ohio, has moved to Omaha, Neb., to become the manager of the Sunderland Brothers brick plant. Mr. Klein has grown up in the business, having started in when a small lad on his father's yard at Baltimore, Md.

S. C. Martin, president of the Kittanning Brick and Fire Clay Company, Pittsburg, Pa., was badly injured when an automobile in which he was riding was struck by a taxicab and overturned. For a time it was feared his injuries might prove fatal, but at last report he was well on the way to complete recovery.

Twenty million brick are manufactured yearly by the Standard Brick Company, of Evansville, Ind., and they are planning to increase this output by installing an equipment for the manufacture of paving brick at their No. 1 plant. Besides supplying the local trade, they ship to points in Ohio and Pennsylvania.

Adams, Payne & Gleaves have bought the Carr farm at Roanoke, Va., and will start a plant to make stiff mud brick, with a capacity of 80,000 brick a day. Will put up buildings and use all machinery needed. C. S. Adams is president; Taylor Gleaves, vice-president and manager, H. H. Harris, secretary and treasurer.

Golding Sons Company, of Trenton, N. J., through their Southern Clay Company, of Franklin, N. C., will erect a clay refining plant to cost \$25,000. The main building will be 112 by 220 feet in size, will handle fifty tons a day, and will have 100 h. p. engine, 150 h. p. boiler, blower system for drying, etc. A dam is being built for power.

John W. Harrigan has instituted a suit in equity against Charles A. Mink, George Mink, Samuel L. Neville and the Harrigan & Mink Brick Company, of Llanwellyn, Pa., declaring that the company is not properly managed, that injustice has been done him as a member of the firm and that attempts have been made to exclude him from the management. He asks the court for an injunction preventing the company from transacting business and the defendants from disposing of the books, and petitions that a receiver be appointed and the affairs of the company wound up.

While repairing a steam pipe above a huge mixer in the Peerless Brick and Tile Works, Ottawa, Ill., Alonzo Wilson, an engineer, was cut to pieces and died instantly. One of the steam pipes was leaking, and while the big mixer was undergoing repairs Wilson was working at the leak. He climbed on to the machine and stood on the knives. Another employe, who did not see Wilson, threw in the clutch and start-

ed the machine. Before Wilson could move his feet were caught in the spiral knives and he was drawn into the machine, being cut to pieces.

The Republic (Mo.) Brick and Construction Company has been incorporated with \$10,000 capital stock by J. H. Berry and W. L. O'Bryant, of Republic, and W. J. Vane, of Arcadia, Kansas.

The plant of the Globe Pressed Brick Company at Ferris, Texas, was destroyed by fire recently, which started in the engine room. The loss is estimated at \$40,000. The plant will be rebuilt at once.

The Jacksonville (Fla.) Pottery and Tile Company was incorporated with a capital of \$10,000, the following officers being elected: N. W. Collier, president; A. Bandlet, vice-president, and S. W. Duncan, secretary and treasurer.

The Fox & Duncanson tile plant at Verona, Minn., was almost completely destroyed by fire, which started early in the morning of April 28. The loss to the plant was covered by insurance and the plant will be rebuilt at once.

The Liberty Brick Company, of Liberty, Randolph county, N. C., was chartered to manufacture and sell brick and lumber. The authorized capital stock is \$20,000 and begins business with \$1,500 paid in. C. P. Smith, Jr., Mrs. C. P. Smith, Jr., and R. A. Smith, are the incorporators.

George Andrew Steiger, an old time resident and clay-worker of California, died at his home in San Francisco, Cal., April 24th. Mr. Steiger had lived in California ever since he was six months old and had been identified with either the pottery or brick business nearly all his life. Two daughters survive.

In order to settle a lien of \$12,000 on the W. Benjamin Davis brick yard at Richmond, Va., the property was sold at public auction to the White Oak Coal Company, of which John T. Serey is manager. It is understood that a brick manufacturing company will be organized, of which Mr. Davis will be manager.

The Electric City Brick Company was incorporated at Augusta, Ga., with a capital of \$25,000, to establish a plant to have a capacity of 60,000 brick per day. Will put up a building and machinery orders have been placed with the Chambers Company, of Philadelphia. J. H. Burnside, of 262 Broad street, is president; W. L. Burnside, vice-president and secretary, and J. E. Brown, treasurer.

E. H. Horton, formerly manager of the Remillard Brick Company, of Oakland, Cal., has brought suit against the company for \$65,000 for breach of contract. The contract stated the length of employment and terms of payment of the manager, and Mr. Horton alleges that the brick company has not fulfilled its part of the contract, as it released him on March 1st.

The Wheatley Pottery at Cincinnati, Ohio, was almost entirely damaged by fire recently, which started from an explosion of gas with which the ware was burned. Great damage resulted from the destruction of the finished ware, a great deal of which was ready for shipment. The loss is partly covered by insurance. Plans are now under way for rebuilding the plant.

The bursting of a flywheel on a 125-horsepower engine created considerable excitement among the workmen in the plant of the Westport Paving Brick Company at Westport, Md., the afternoon of May 8. The crash could be heard for a quarter of a mile away. Portions of the 10-foot flywheel flew in every direction. An immense hole was torn in the steel roof of the engine room and the engine and engine base were shattered to fragments. A piece of wheel, weighing about 50 pounds, was found near the company's office, about 1,000 feet from where the accident happened. The men in the plant fled in every direction. The accident, it is believed, was due to the breaking of the governor belt.

JERSEY HIGHWAYS.

A bill was recently introduced into the New Jersey Senate by Senator Brown, of Monmouth county, which embodied the recommendation of the New Jersey Highway Commission with reference to the creation of a system of state highways. It authorizes the cession to the State Highway Commission of certain municipal and county roads needed for the establishment of the trunk roads, and provides that their maintenance and repairs shall be at the expense of the state, except so far as bridges and culverts are concerned.

THE MANUFACTURE OF BRICKS FOR STREETS AND ROADWAYS.

In a paper read before the first American Congress of Road Builders, Mr. Geo. W. Kummer describes the primary elements of a "Vitrified Brick" as: First, a suitable clay, a mineralized clay, one possessing annealing qualities. Second, the sufficient grinding of this material and its **proper formation in the green state** as absolutely essential for the production of a good paver which he preferably designates not as a vitrified but as an **ANNEALED BRICK**.

During the processes of proper manufacture the constituent elements of such a clay are converted into new forms and the finished brick is a homogeneous mass, free from lime as an active element, and is annealed with every clay particle bonded. This very excellent description of the finished article is in harmony with the requirement of engineering practice which stipulates that a street paver must not absorb over a given percentage of water within a specified time, nor lose more than a certain percentage of its weight when subjected to an abrasion test under established conditions; that it must in short possess not only transverse strength, but the quality of resistance to the ravages of impact, abrasion and absorption.

With this end in view, is it not a logical conclusion that a manufacturing process molding a paving brick to the required shape at one operation, with the constituent particles intimately bonded with the greatest amount of material per cubic inch of contents, and then leaving such a brick to be dried and burned without further mechanical disturbance of its structure, is **the method** productive of the best paver? The Chambers End-cut Auger Brick Machine with Automatic Indenting or Round Corner Cutter produces precisely this result.

The alternative process of molding a green brick to approximate shape, placing it in a press box and squeezing it between two plunger plates in order to change its shape, is commonly termed the Repress Method. That the term is erroneous is evidenced by the fact that Repressed Paving Block are **expanded in bulk** by repressing and have from 3 to 4 cubic inches greater measurement after repressing than before. The ill effects of this expansion of bulk is immediately shown by the fact that certain repressed Paving Block suffered from 4 to 5 points greater loss during the rattler test than End-cut Block not repressed, made from the same shale, on the same plant, and burned in the same kilns.

The End-cut Machine is pre-eminently the one for this method of manufacture, because it not only molds a block of greater density than Side-cut Machines, but for the reason that the end-cut block possesses a structural formation that is in itself an element of strength and of resistance to wear. Since then a better article at less cost is produced without repressing, it would seem that the practice of repressing Paving Block was based entirely on some ground of commercial expediency.

Repressing breaks the bond between the particles formed in molding the material to shape in the brick machine and fails to establish a new bond equally good.

We Build This Machine and The Cutter.

We Also Build REPRESSES For Those Preferring The Repress Method.

CHAMBERS BROTHERS COMPANY
PHILADELPHIA, PA. and CHICAGO, ILL.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.

TOTAL OF building permits for San Francisco during April shows a decided increase over the preceding months, but according to the brick dealers, business does not come up to expectations. The month of April registered a total sum of \$2,320,826 for building permits in San Francisco, but this does not compare favorably with the record of Los Angeles, which showed the figure of \$3,434,400, or over a million dollars to the good over San Francisco. The month of May has started out well for San Francisco, contracts which have been held back for months are now being let, and the month promises to show a record for San Francisco in the building line.

The contracts on many city and school buildings are being estimated in addition to the regular activity in private buildings. Melvin G. Dodge, Secretary of the Board of Education, has sent to Supervisor Nelson a revised list of schools for which plans and specifications have been asked. The number of schools being planned for San Francisco is fifteen, and the estimated cost of the construction work alone totals over \$2,200,000. This city is not alone in this good work, for the other large cities of the coast, in addition to all of the smaller towns, are now having plans and specifications drawn for buildings to be erected this coming summer.

N. Clark & Sons have secured contracts for terra cotta and pressed brick on the R. S. Brown building at O'Farrell and Taylor streets, Sutton & Weeks, architects; on the A. Meyers apartments on Eddy street, Guilfuss & Son, architects, and on the Steinhart apartment house at Sutter and Leavenworth streets, McDougall Brothers, architects. The company has also secured contracts for terra cotta on the Tally Theatre in Los Angeles, Cal., Train & Williams, architects, and for large brick on the Thompson estate building in San Francisco, Guilfuss & Son, architects. Fred Meyer, architect of the Schmidell apartment house, has decided to use the new rustic face brick, made by this company, on this new 8-story corner building, and has placed his contract accordingly.

The United Materials Company, agent for the Los Angeles Pressed Brick Company, has closed the deal to supply the so-called "ruffled" brick for the Children's Hospital in San Francisco. Mr. Faville, architect for this building, went down to Los Angeles a short time ago to look over the products of the Los Angeles Pressed Brick Company and selected this brick for the facing. The company has secured contracts for supplying white enamel brick for the new National Bank building in Petaluma, Cal., white enamel brick for the Hamman Baths Company in San Francisco, white sandstone brick for facing purposes on the Pullman Car Shops in Richmond, Cal., fire brick for the Columbia Steel Plant at Black Diamond, Cal., and red pressed brick for the Mission Congregational Church in San Francisco.

The Carquinez Brick and Tile Company has completed all of the improvements in the plant started a few months ago, and the factory is now running to the full capacity with a superabundance of orders on file. Common brick seems to be its stronghold, for the company has been working toward lessening the cost of production to meet the low selling price, and has thus far succeeded in getting a large proportion of the San Francisco business.

It is reported from Vallejo, Cal., that the Standard Oil Company has been negotiating with Gladding, McBean & Co. for the site occupied by the Union Pressed Brick Company.

The Niles, Cal., brick yards have orders for 1,000,000 bricks during May and several large advance orders have been secured for the new brick plant at Decoto. One million bricks are to be furnished by the Carnegie brick yards for the construction of the new Bankers' Hotel in Oakland, Cal., the contract having been awarded about a week ago. Two hundred men are employed now at Carnegie and at Tesla in the

sewer pipe factory, which has been re-opened after a long shut-down.

A number of men of Jackson, Cal., are organizing a company to develop a bed of lime near Mt. Echo. The project is being headed by W. H. Greenbalgh, A. Ginocchio, G. W. Brown, Jno. Strohm and J. Newman. It is the purpose of the company to organize with a capital stock of \$75,000 and to develop two hundred tons of lime a day from the three hundred acres of land upon which an option has been secured.

The Porterville Brick Company, of Porterville, Cal., is working on hand-made bricks, having just burned the first lot. The plant has one pug mill running now, but will begin immediately on the installation of the wire cutting machine, the engine and boiler, which were received in good condition a couple of weeks ago from the East.

The Simons Brick Company in its El Centro, Cal., plant has begun the construction of buildings for the use of the workmen. The company is sending the brick and tile manufactured at the new plant to all the towns of the Imperial Valley, and the demand is increasing so rapidly that the company has decided to add new machinery and to enlarge its plant. The clay beds, when first worked over, were thought to be of the best quality, but it seems that the farther down the diggers get the better clay is produced, till now the manager of the El Centro plant is beginning to think that he has charge of one of the best plants in the country.

Walter Simons, of the Simons Brick Company, has been in Yuma, Ariz., to start an agency for the sale of bricks and hollow building tile made at El Centro.

City Engineer C. M. Copps, of San Diego, has returned home from a trip to Los Angeles, Cal., to inspect the work done in paving brick. His report comments upon the streets of Los Angeles and states that the paving work is highly satisfactory. The cost of paving bricks was found to be \$18 per thousand, f. o. b. Los Angeles. The City Council is now proposing to use brick in a lot of paving work in the hilly parts of San Diego, as asphalt, which is used extensively in these regions, has been found to be slippery on the up-grades.

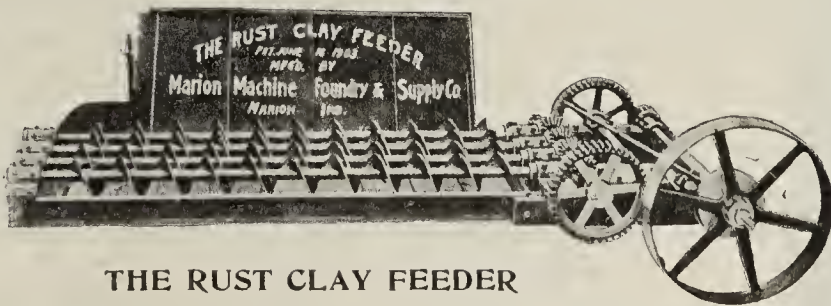
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\$500 to \$1,000

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fully describing this new clay feeder and
mixer.

Marion Machine, Foundry & Supply Co.
Marion, Ind.



Barrett's PAVING PITCH



Main Street, Akron, Ohio, South of Thornton Street.



Main Street, Akron, Ohio, North of Thornton Street.

An Exact Comparison

GROUT-filled brick pavement. Laid 1896. Photo 1909. In bad condition. Bricks chipped and broken, because the pavement was too rigid and inelastic. Serious damage along the rails, because the brittle cement grout could not stand the hammering vibration and was pulverized. *RENEWAL NEEDED.*

PITCH-filled brick pavement. Laid 1891. Photo 1909. Five years older than the other pavement, but in much better condition. The elasticity of the filler permitted a slight yielding under strains and the bricks therefore have not broken or chipped. No damage along the rails. *RENEWAL NOT NEEDED.*

The Superiority of Pitch

This is the most exact comparison that we know of in the history of pavement fillers and it demonstrates clearly the superiority of pitch.

Akron used pitch 1892-3-4. Then for a few years cement grout was used, but the results were so disastrous that for the last ten years pitch has been used exclusively. The best pitch for paving is the kind used now in Akron, namely, **Barrett's Paving Pitch.**

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Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



TOLEDO PROPER the building brick business is inclined to fall somewhat below earlier estimates, although there is a fair volume of trade. The difficulty has been that commercial and industrial work has been very slow in getting started, although a large amount has been projected and much of it will undoubtedly be realized a little later in the season. Toledo brick manufacturers have been kept busy, however, and have had no trouble in finding plenty of markets for all the brick they have produced at good, living figures.

The smaller towns and cities of the surrounding territory have proven especially good customers, and large quantities of brick have found their way out of this city thus far to meet this demand. Michigan is reported to be a very active field, and shipments to that locality have been numerous and of good volume. Even Detroit has called upon the local plants for assistance and several shipments have left for that destination recently. The unusual activity of automobile concerns is said to be responsible in some measure at least for this uncommon occurrence. All of the local yards are running at or near capacity and there is no large surplus of building brick on hand. Prices are holding up well and show no signs of becoming any cheaper than at present. Common building brick are selling at \$7 net. Foundation brick of good quality are bringing about \$7.50 net, and face brick are quoted at \$8.

Some of the conditions which are responsible for the slow movement here may be deduced from an analysis of the figures from the office of the Building Inspector. The month of April fell far below the corresponding month last year in point of valuation of new structures. The total valuation was but \$266,217 as against \$397,291 in 1909. On the other hand, there were two hundred and ten permits issued as against one hundred and forty-one last year. Most all the building has been of frame residences in which, aside from foundations, brick have cut but little figure. On the other hand, the large business blocks and factory structures have been scarce, and from these the brick market is recuperated. Many important jobs have been contracted for, however, which lend considerable promise to the brick industry. Large additions at the Ford Plate Glass Works, the Willys-Overland Automobile Works, the Warner plant, the Castle Lamp Company, the General Electric, the Kinsey factory, the 5-story business block for Teidtke Bros., two half million dollar high school buildings, and numerous other contracts are among the apparent certainties. Taken altogether, there is nothing discouraging in the outlook which at present promises at least a fair average season.

Other clayworking industries are in the midst of what promises to be a highly satisfactory year. Paving brick are in exceptionally good demand, and most all of the small towns, as well as the larger trade centers, are in the market for large amounts of both paving block and sewer pipe. In fact, this summer will witness more street improvement and sewer work than has been known here for a long time. The highly prosperous condition of farming communities is also being felt on the right side of the ledger. They are spending considerable of their surplus money in building and draining. Municipal bonds are selling readily and there is no holdup in securing plenty of funds for street improvement work. On every side there is apparent an air of more prosperous times, and clayworking institutions are reaping their fair proportion of the benefit arising from the change.

A proposition which is of unusual interest to brick manufacturers and dealers of Toledo has been taken up by the

Toledo Chamber of Commerce and is now being developed as rapidly as possible. The plan contemplates the establishment of a large industrial addition to the city of Toledo, the idea being to secure a large and well located site for industrial plants and to hold the real estate at a price which would attract the attention of those seeking new locations. A subcommittee, consisting of A. L. Spitzer, W. W. Knight, Thomas W. Fogg and Louis H. Paine has been selected to enlist the co-operation of the Toledo Real Estate Board. The real estate men will be asked to furnish a complete list of desirable industrial sites and to assist the Chamber of Commerce in preventing the boosting of prices when some particular site is wanted by a prospective manufacturer. It is probable that the move will result in a much larger call for building brick for factory building than has been known here for some time.

A new scale of wages has been adopted by bricklayers at Lima, Ohio, and it has been agreed to by employers. The new scale calls for 62½ cents an hour, and an eight hour day. Heretofore there has been a nine hour day at 55 cents per hour.

The contract for paving Michigan street, Toledo, from Galena to Chicago street, with vitrified brick has been awarded to C. F. Peters & Son for \$4,901.30.

The United States Electric Porcelain plant will not leave Findlay, Ohio. This fact was settled this week when William J. Frey and the Findlay stockholders purchased the plant. The plant had threatened to remove to Cumberland, W. Va., and some sharp litigation resulted. The recent transfer, it is understood, will straighten out all the kinks, and the plant will soon settle down to a regular basis. It gives employment to about one hundred and fifty men. F. E. Owen has been chosen general manager of the concern. It has been closed down for several months, but it will be put in operation at once. Owen comes from East Liverpool, Ohio.

Dewey Anspaugh, 12-year-old son of John Anspaugh, of Payne, Ohio, was recently seriously scalded about the face, neck and breast. Anspaugh operates a tile mill and was doing some repair work on a hot water pipe near the boiler when the pipe broke and the steam and boiling water struck the lad in the face.

Charles Peake, president of the Berlin Heights Brick and Tile Company, at Sandusky, Ohio, was recently found dead in his stable, his face and breast badly trampled by the heels of the family horse. He had gone to the barn to feed the animal apparently in perfect health, but it is believed that he was stricken with apoplexy. When he failed to return for breakfast within a reasonable time, Mrs. Peake went to search and found him beneath the hoofs of the horse. He expired as soon as he had been lifted up and without regaining consciousness. Peake had been prominent in local Republican politics, had at one time been county commissioner and was, until recently, superintendent of the Erie County Children's Home. He was 62 years old and is survived by his wife and an adopted daughter.

T. O. D.

THE ANTON VOGT KILN CONSTRUCTION COMPANY,

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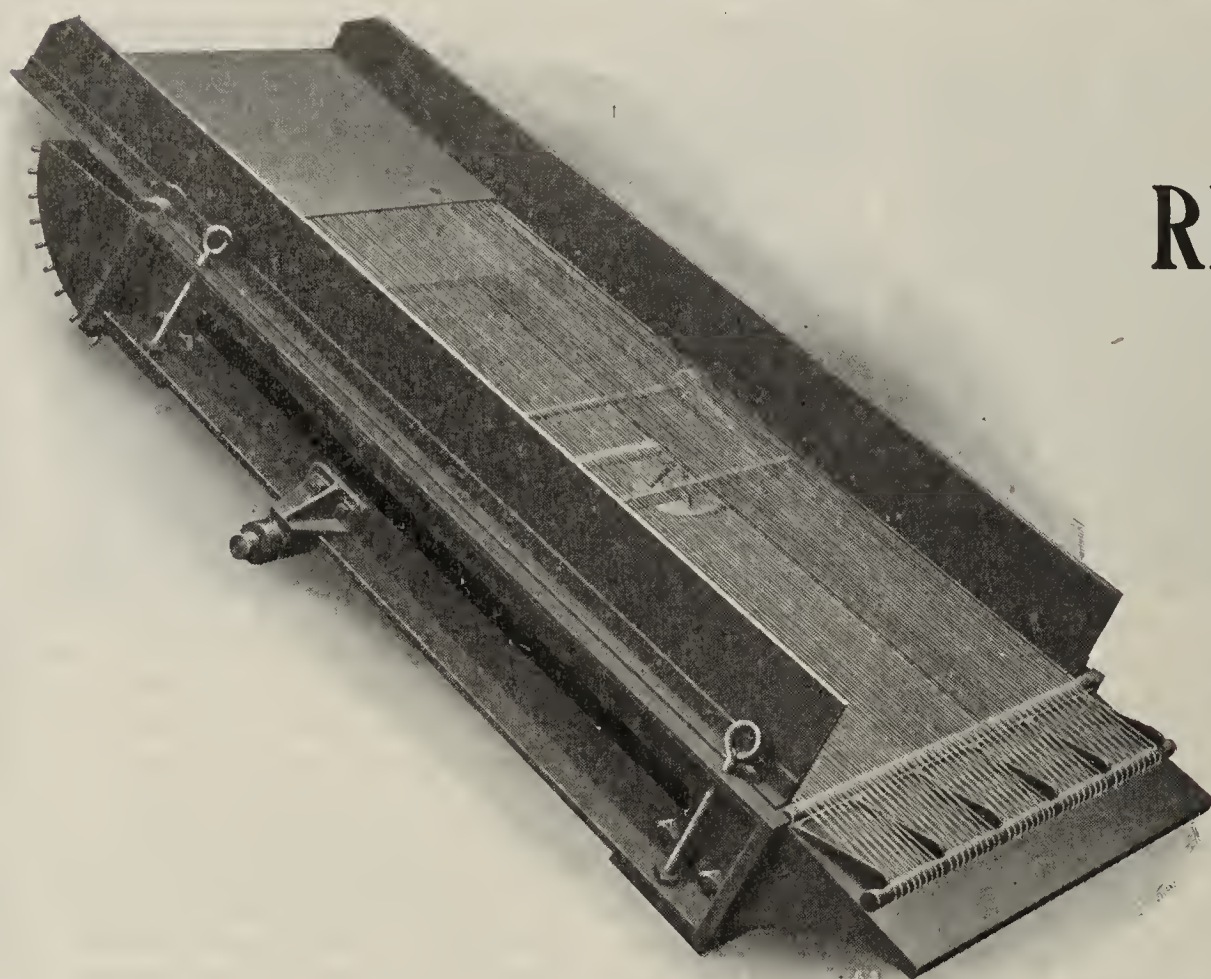
Fort Smith, Arkansas.

References: Munson Bros. Brick and Tile Works, Capron, Ill.; Patton Clay Mfg. Co., Patton, Cambria Co., Pa.; Tom Hope, Pres. Ada National Bank, Ada, Okla.; Cooper and Bones Brick and Tile Co., Ada, Okla.; Alabama Brick and Tile Co., Hollywood, Ala.

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for Preventing the Separation of the Wires

(Patent applied for, of which we have secured control)



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Wire Vibrator and

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NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Written for THE CLAY-WORKER.

BRICK NEWS FROM THE KENTUCKY METROPOLIS.



PROGRESS IS REPORTED among the clay manufacturing concerns here, and the indications are of the kind that is giving greater promise of better things in the future. In so far as the weather is concerned it has been less favorable than it was in March, and later, but there has been no less activity noted on this account. Building prospects seem brighter, and there has been a greater demand for all kinds of clay structural materials, as well as for paving brick and sewer pipe. In fact, there has been a general revival in the demand for all clay commodities.

There is considerable new street work under way here, and in other sections of the state, and there has been a much larger demand for vitrified paving brick than has been noted in the past several years. It seems that there has been an awakening to the economy of this form of street construction, and there have been more brick used in this way of late. Then, there has been a realization of the fact that the trouble with brick streets has been rather due to poor construction than to any fault of the brick, and this has been creating a more favorable impression in the minds of the public in general.

The call for sewer pipe has increased, and the indications point to a better demand for this line in the coming months, due to an increase in both building operations and street work, and the fact that the new sewerage system in this city is awakening a more urgent demand for improved sewerage facilities. Not only in this city, however, but in the smaller places, and the effect, as a whole, is good for the manufacturers.

Fancy brick, enamel tile and mosaic work are all finding more general favor here, and the prospects in these several lines offer more favorable indications than in the past.

There has been a new company incorporated here to handle sewer pipe. It is known as the H. B. Milliken Sewer Pipe Company, with a capital stock of \$5,000. There are fifty shares. The incorporators are: Henry Bosquet, John Meyer, Harry B. Milliken. The limit of debt is \$5,000. The company will handle the output locally for the Cannelton Sewer Pipe Company, of Cannelton, Ind.

Favorable progress is reported from the office of the Louisville Fire Brick Works at Highland Park, Ky. Mr. K. B. Grahn says that the demand for all kinds of fire brick and other fire clay goods has been improving, and that they are selling all they can make. He believes that there is every indication for a very pleasing increase in the demand this year, and has hopes of seeing the increase so great that by fall there will be a nice demand. They are pleased with the way the demand is improving, and count on a very good business each month.

The Louisville Brick Company is so rushed with orders for building brick that they are unable to supply customers without making outside purchases. They feel that the increase will continue, and have never found conditions for their industry more favorable than of late. Orders have been increasing in the past month or so at a good rate.

The Southern Brick and Tile Company is still as active as in the past month or so. This is saying that they are very active, because they have had about as much as they can well take care of in that time. They say that there is a pleasing prospect ahead for building here and have now about as much as they can well handle. There has been a decline in the demand for drainage tile and the season will be quiet for some months for this particular line with them.

Thos. McCollum & Co. say that they do not find the situation otherwise than gratifying in so far as the call for building brick is concerned. They have no trouble in selling as many brick as they can manufacture, and this is all they can hope for at best.

The Kentucky Vitrified Brick Company is much gratified

over the way the demand for their output has improved of late. In fact, they are just as busy as they can be, and are pleased over the indications for increased activity for the coming months.

The Hydraulic Brick Company is keeping things on the move, as usual. They operate a number of large plants and are doing a nice business in pressed and repressed brick. They always have on hand a number of orders of the larger kind.

The Louisville Pottery Company is operating to capacity. Business is fine with them, and they are doing as much as they can, with the prospects of the kind that look favorable for the coming months.

The P. Bannon Sewer Pipe Company has a large number of orders and are as busy as they can be. The demand has been improving of late. From the present indications it looks very much like there will be a continued increased demand this year, so that there will be a more favorable report to make than has been the case in several years. With their large plant operating to capacity, they are finding it difficult to keep abreast with their orders.

The American Mosaic and Tile Company has plenty of work in sight, and feel much encouraged over the indications for the future.

The West Point Brick and Lumber Company, whose large plant is located at West Point, Ky., find themselves very much rushed with orders for building brick. While they are making a number of improvements at their plant, these will not be completed for some time, and they are not able to meet all their orders with their present capacity.

The Burrell & Walker Clay Manufacturing Company find that the situation with them in clay lines is becoming more active now. They could do more, but they are doing a better business all the time and this is giving them much to keep them active. They are operating their plant at Owensboro, Ky., with full force.

COLONEL.



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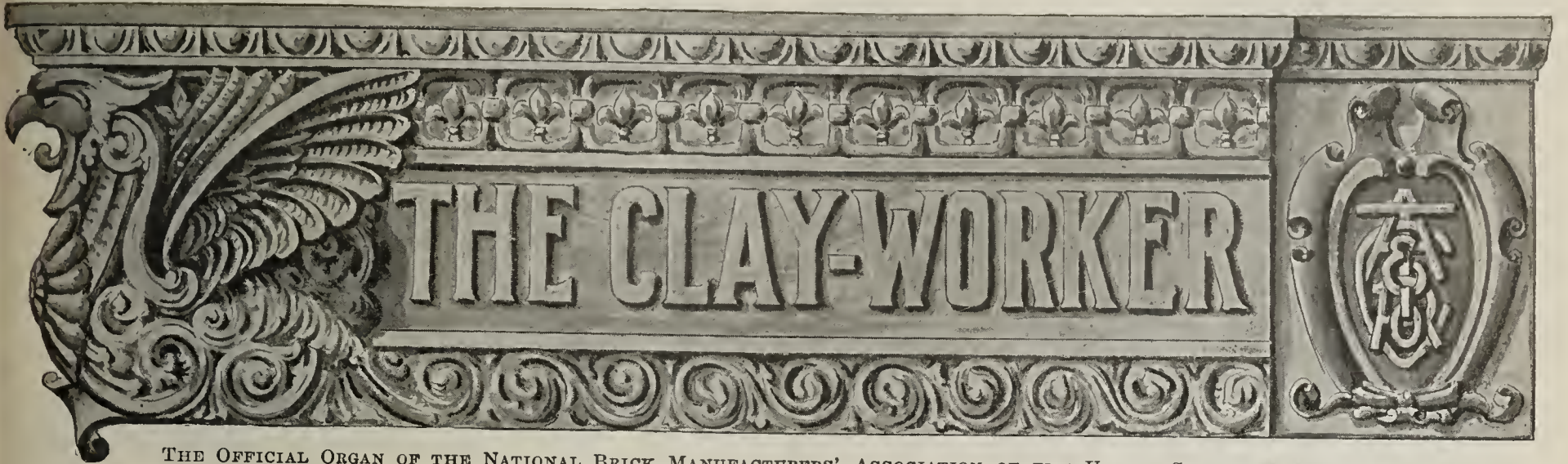
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Vol. LIII.

INDIANAPOLIS, IND., JUNE, 1910.

No. 6.

Written for THE CLAY-WORKER.

IDEAL HOMES SHOW.

REMARKABLE EXHIBITION AT MADISON SQUARE GARDEN, NEW YORK CITY, MAY 18 to 25, 1910.

MADISON SQUARE GARDEN was the scene of a novelty in May when the Real Estate and Ideal Homes Show held the interest of large numbers of people for a week. It was, perhaps, one of the most interesting and instructive exhibits ever seen in the Garden, and exemplified in a concrete way the progress that is being made in real estate development and the construction of ideal homes in suburban communities at moderate cost. Often this progress is overlooked, because very many see only here and there a development, and are disposed to limit their impressions of real estate and home construction to the comparatively small features which they see from time to time, while, as a matter of fact, this one may represent the movement centering around a city or in a community, really very important in its bearing upon the entire idea of home construction.

Unquestionably this show was a revelation, and even though it was an advertising scheme pure and simple, it was a good one, and its results will be far-reaching and beneficial.

The great need of the present is a moderate priced house. Lumber has become so expensive that it is almost prohibitive in some localities, and stone has been so for years. There have been numerous compositions invented which are claimed

to have solved the problem, and yet almost invariably they are disappointing when it comes to practical use. It is needless to mention these. They are too well known to require mention. Also the failures which have been characteristic of their use during the past few years. They have failed. That much is certain, and now something must be done to provide for the average purchaser or builder of a home some sort of material which will be cheap, and which will be as cold and heat resisting as lumber or stone and at the same time afford opportunity for reasonable artistic development.

Plain houses are no longer wanted. Even the builder of the humblest home wants some degree of architectural adornment. Manifestly, therefore, the material used in construction must lend itself somewhat to architectural adornment and the development of artistic features. When that is found it would seem as though the problem was solved.

The National Fireproofing Company had an exhibit of a model house built wholly from their Natco blocks. One doesn't need to go further to discover that the problem of price and serviceable-



A Fireproof House. Exhibit of The National Fire Proofing Company, Madison Square Garden.

ness is solved. The house was artistic. Its construction was absolutely permanent. It went further than many builders have required. It was fireproof, and the additional cost was much less than the cost of carrying insurance on the ordinary slow-burning structures which have done duty for homes so long.

The difficulty experienced heretofore in the construction of such houses has been securing the adhesion of the stucco or plaster surfaces. Unless these surfaces can be applied

there is little beauty, and the former methods, which have resulted in peeling, or lack of perfect adherence, have disgusted many builders otherwise favorable to the utilization of clay blocks or hollow tile in the construction of dwellings.

The successful utilization of terra cotta hollow tiles for the walls and floors of houses has proved a great step forward in the development of moderate priced dwelling construction, and the method was never more graphically and convincingly presented than it was here. Thousands saw the model, studied its economical but perfectly solid construction, learned of its reasonable cost, and decided that they would specify for the new house they intended building.

The Natco block has been brought to a state of unusual efficiency, making it absolutely what it purports to be—a cheap but effective scheme of house building. No more can be said. The affable representatives of the National Fire Proofing Company made every one who entered the model house welcome, and undertook to make the method of construction plain. They distributed explanatory literature bearing upon this subject, and in other ways sought to make the matter as plain as possible. The majority of visitors were seeking for information, and it was imparted here as well as possible. Surely an inquirer must have left the exhibit feeling certain that he had discovered something practical at a moderate price, and with the additional feature of permanency and fireproof qualities, which are becoming more important as time progresses and communities increase in size and more buildings are erected.

While the application of plaster to terra cotta blocks allows of almost any artistic development desired, some prefer the brick itself. But there has been a complaint that brick was not entirely satisfactory unless it were colored or painted. This objection has been entirely overcome by the introduction of Tapestry brick, which was shown by Fiske & Company, Inc., who had the end of a house constructed of this special brick, together with division walls and posts constructed of the same type of brick, but differing in color and treatment. It is impossible to describe the beautiful coloring and the soft blending of the brick made by this process, nor is it possible to convey any adequate appreciation of the artistic effect which results from judicious use of it in construction purposes, no matter what the construction may be.

For example, an entire set of buildings may be erected, utilizing different colors of brick, with different types of surface for the different buildings, which, when done, would blend into one complete picture, harmonious and delicate. The colors run through Indian reds, coppers, olive greens, purple browns and deep blues. Another variety of clay produces a brownish gray, running into cream and coffee shades, deep russets and tobacco brown, giving in the mass the effect of old ivory. Of course, this doesn't exhaust the list, but it represents in some degree the wide variety procurable, and is a hint of the artistic possibilities of construction with these favorite brick.

For suburban development it would be difficult to imagine anything better. It makes the old Roman style of construction possible, and in the construction of a villa, for example, enables the architect to carry out a work which in artistic excellence will equal anything produced in the days of most artistic expression in brick. The old Roman style may be supplemented by the Persian styles, and others as well, but these are mentioned as being peculiarly fit subjects for satisfactory work in this type of brick.

With this brick the triumphs of the early Babylonian architects can be reproduced, as well as the beautiful structures of Italy, Normandy, France and England. American architects are learning to utilize brick quite as well as those architects, and ultimately there will be a type of structure developed which in point of architectural excellence and artistic development will equal the best of those.

Those in attendance at this exhibit were untiring in their effort to impress upon seekers for information the excellence of the material and the possible development under skilful

handling. It would be difficult to imagine anything finer or more in keeping with the present tendency to make homes as attractive as possible both outside and in.

The Pennsylvania Fireproofing Company, of Erie, Pa., had an exhibit of its products, under the care of Edward Buhler Company, which represented the latest development in fireproofing for the construction of all buildings, both small and large. The ground covered was exactly that which recurs to those about to build, no matter whether it is a home or a business building or a public building. All alike share in the general desire for excellence at moderate cost. And by the utilization of these fireproof blocks the problem is satisfactorily solved.

BRICKMAKERS SOLVING A GREAT PROBLEM.

At Canton, Ohio, unusual interest is being taken in a fasting campaign inaugurated by P. D. Hardy, thirty-five, president of the Canton Pressed Brick Company, who has had throat trouble for some time. Mr. Hardy began about the middle of May on a forty-day fast, and on June 10 was still at it, determined to run the full time. He says that after the first four or five days he had no desire to eat. He has lost about twenty pounds in weight, but thinks that the enforced hunger will cure his throat trouble.

Mrs. George Fulkerson, wife of the assistant superintendent of the Canton company, also is fasting, and on June 10 had gone fifteen days without eating. She had lost thirty pounds, and was glad of it. She is taking the treatment to see if she cannot rid her system of impurities which now cause rheumatism. H. S. Belden, vice-president of the company, also went without food for a week, and several others fasted for a number of days each. In the meantime the brick plant goes right along turning out brick while those in charge are trying to solve the high cost of living problem. Mr. Hardy thinks he has at last got a solution to it.

GRADUAL CHANGE NOTED IN BUILDING MATERIALS.

Have you been around lately where houses are being built? Have you taken any notice of the style of architecture, of the trimmings, and of the home look that these houses have? Have you thought of some of these houses in comparison with some of the older houses in the down-town districts? If you have, you have found a vast difference in the beauty and appearance of comfort from the outside, and if you have had the opportunity of seeing the inside, you have found the beauty and comforts there.

This difference is not a "happen so"—it is progress; progress in style and architecture, progress in the builder, and progress that has been made in materials. It is progress because the material man has gotten out of the rut, has gone to the builder and architect and shown him new things, and has taken back with him ideas from the builder and architect, and has worked on them. This progress has not come with a rush, but has been of steady, sure growth. We can easily mark it by taking one item and following it. Take brick, for example; see the old brick chimney protruding from the roof of some old house; see the little pile of brick under each corner of the porch, with no other support for the floor; then look up the street at that house built a little later—see the smart-looking brick foundation around the whole house, and that house built a little later with the outside brick chimney, and then up the street a few blocks see the house set well upon a brick foundation—notice the outside chimney, notice the brick porch railing, notice the brick pillars supporting the porch roof—and then up the street a few blocks, see that brick house, or is it brick? Perhaps it is only faced with brick, but from the appearance without and the warmth and comfort within it may be of solid brick walls.

And so brick have progressed, not because they are made any better than they were before, but because the brickmakers can furnish the architects and builders just what they want to fit their color schemes, arcs and angles and make their houses strong, handsome and durable.—Exchange.



Written for THE CLAY-WORKER.

DRAWING BRICKS FROM KILNS AND SORTING.

(Seventh Paper.)

SYSTEMS for rapid and economical handling of burned bricks have not worked out to any great extent, and the wheelbarrow is still the most common vehicle. The ease with which the operator can get to all parts of the yard and bring the barrow immediately in touch with the working face, whether drawing, piling or loading, are very much in its favor.

Compared with a car system, our experience has been that for short runs the wheelbarrow has the advantage.

Twenty-five to thirty cents per thousand is a general price for handling common bricks from kilns to stock pile or to car.

Conveyors are being introduced on a number of yards, and they may save the cost of the wheeling, but a large part of the labor is in the loading and unloading, which the conveyor does not overcome.

In some conveyor systems, trouble arises from the fact that the bricks are removed from the kiln in courses and there is no opportunity to get a mixture of the bricks. For example, if we were drawing an up-draft kiln with such a conveyor, at first we would get only soft top bricks, which could hardly be shipped alone—at least there would be many situations where whole cars, and several in succession, would not be accepted by the brick contractors. Following the soft bricks would come the best of the kiln, and the finish up would be all arch brick. With a wheelbarrow or car system, each bench of brick could be mixed in the car, or the soft and hard could be run to different cars.

The gravity conveyor is more elastic than a power conveyor system, but it is largely limited to short distances, where the wheelbarrow is also in its most favorable situation.

Gravity conveyors must be kept in good condition, else they become a nuisance and will be abandoned for the wheelbarrow which is always ready and in working order.

There is one feature of the conveyor system which is worthy of consideration—it sets the pace.

The men at the delivery end must get the bricks out of the way and there can be no loafing unless the force at the receiving end falls down. This reduces the responsibility for the output to one set of men, with no chance to shoulder the blame upon some one else.

One conveyor system uses flights holding four or five bricks, and the speed of the conveyor sets the pace.

We have found that even a lazy man will take some pride in keeping up to the mark when the work is cut out for him.

Handling bricks in larger units by cranes has been tried and is still subject to experiment.

The problem which confronts one in working out such a system, is first picking up the load in the kiln.

Lifting cranes with finger racks can easily pick up loads of bricks when they are properly spaced as is being done in handling green bricks.

In the kiln, however, shrinkage, rolling, etc., may disarrange the spacing.

The problem is fairly well worked out by using movable fingers.

If the bricks stick, as many brick do, in the kiln, this system would not be applicable.

The method to be complete and warrant the cost of installation should also place the bricks in cars or piles. In cars, the bricks should be packed solid, and this is the second difficult problem to overcome in a crane system, for which there is no solution in sight.

In some few instances the bricks may be dumped helter-skelter in the car, which removes the difficulty, but there are not many contractors who will accept bricks so loaded because of the cost of unloading.

A system which is in practical operation and is applicable in a few situations consists in packing the bricks in racks on cars in the kiln. The cars are run to a central loading station and the racks, holding 500 brick perhaps, are swung by a crane to the boat or car in which they are to be shipped.

At the receiving yard or wharf, the racks are again handled by cranes to wagons and unloaded by hand at the building, the empty rack being returned to the boat.

This method is especially applicable to tidewater and river shipments, where the manufacturer owns the boats. It saves the greater part of two handlings of the product.

The wheelbarrow or car is the best system for face bricks which have to be sorted and stored in sheds for shipment. The cost of drawing, sorting and piling will vary from 50 cents to 80 cents per 1,000.

High piling is the rule on most face brick yards, but the cost would be less if the piles were only as high as a man could reach conveniently. A high pile requires a piler to whom the bricks must be tossed, and when the bricks are loaded out they have to be tossed again, all of which adds to the cost. The figures from one yard show a cost of 13 cents per 1,000 for tossing green bricks in the kiln, and in another yard the cost of "catching" the bricks from the sorter in the kiln is 18 cents. These figures give us some idea of what it costs to toss bricks in piling them.

Two methods of piling face bricks are used. One is to pile them on edge face down in straw, or in some instances without any packing. It is claimed that they can be handled much faster in loading them out. Our experience is that many bricks are damaged by damp and rotting straw, or if the straw is omitted, the edges are chipped.

The greater objection is, perhaps, that the foreman can not see how well the sorting is being done and trouble arises after the bricks are delivered at the job or laid in the wall.

The other method is to pile them face out on the flat, two courses high. In loading these out, the loader will handle

four bricks at a time, two in each hand, which is about as many as he would handle if piled on edge.

The bricks are not damaged in any way, and the foreman can easily see how well the sorting is being done.

If the bricks are packed face down in the car, the "on edge method in the pile" has some advantage over the "face" method of piling, unless the latter can be loaded on barrows from the back of the pile, which brings them right to load face down on the barrow.

There should be no up grades. The tracks should be depressed to bring the cars on a level with the kilns and sheds.

The runs for barrows should be level and provided with iron plates or bands and the wheels of the barrows should be large (26-inch at least) and set well back under the load, and the tire slightly rounding. Under such conditions a man will wheel from 100 to 120 bricks much easier than he can wheel 50 bricks under bad conditions.

If the cars are above grade, requiring an inclined run, the

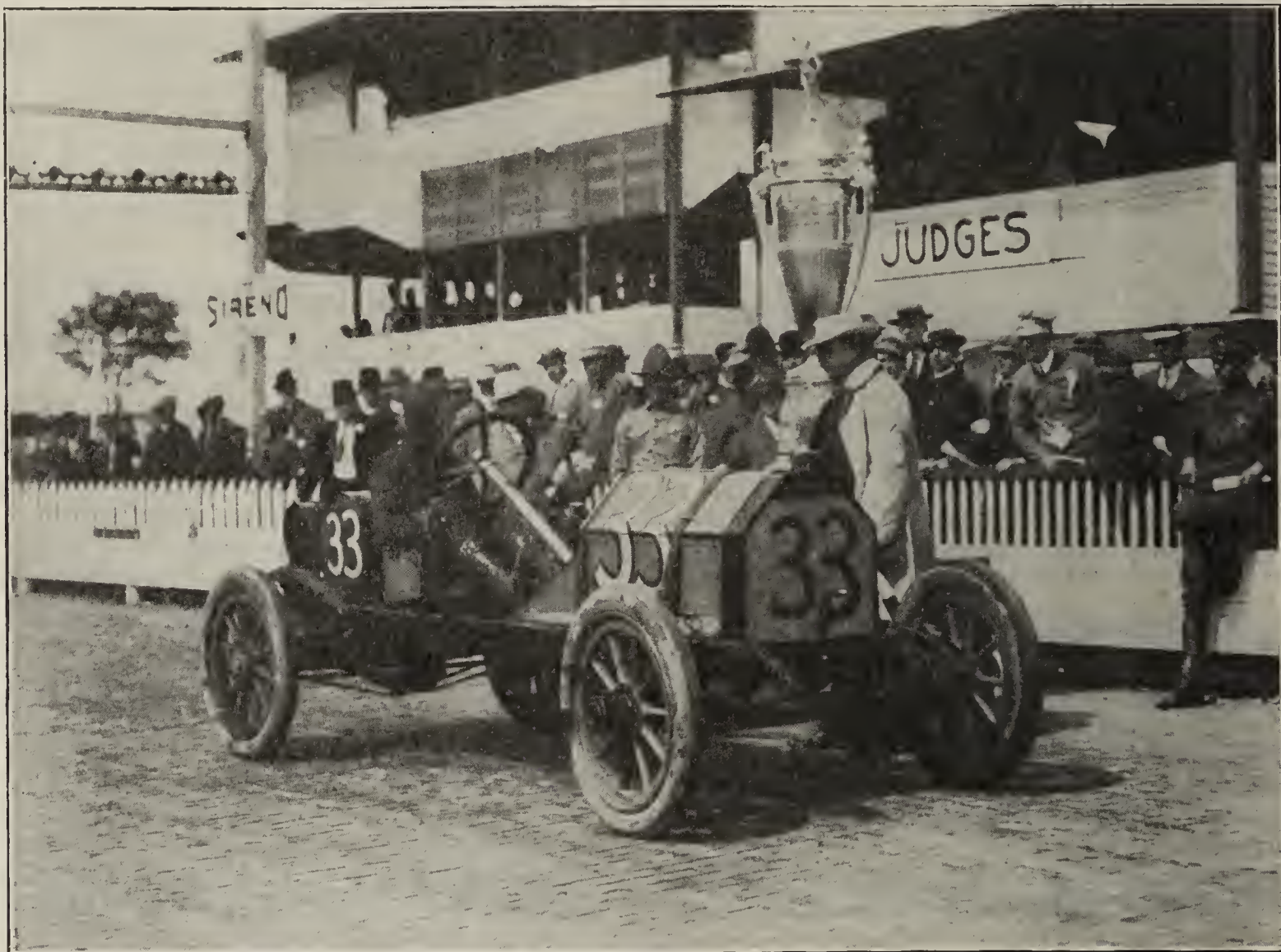
wheeler passes it, but this extreme is rarely necessary. The sorter, the piler, or the car loader usually has time to register while barrows are changing place.

In concluding the subject of "Drawing and Loading," we wish to express our respect for the brick wheelbarrow. We have little use for a wheelbarrow in handling the clay, but in handling the burned product, the wheelbarrow makes a brave showing in competition with any other method.

(To be continued.)

BEAUTIFUL EFFECTS IN BRICK BUILDINGS.

For years in this country brick buildings were resorted to where the expense of stone and granite and marble barred the use of these materials. It was looked upon, in fact, as of secondary nature. That time has gone. Today brick is regarded as equal to if not better than any other structural material and its beauty and adaptability are rapidly becoming keenly appreciated by our architects. The manufacturers



Ray Harroun, in Marmon Car, Receiving the Wheeler-Schebler \$10,000 Trophy. In This Race Harroun Set the World's Record, Making 200 Miles in 2 Hours 46 Minutes 36 Seconds.

possible load will be reduced, and try as you will, this smaller load will become the standard of the yard.

Records should be kept of all work, so that the foreman and manager can know just what work each man is doing.

The men also are interested in making and breaking records.

We do not consider chalk marks on bricks good records. They take too much time. A tally board with pins is always liable to error through dropping out of pins and misplacing them.

A simple counting device, which will cost five to ten dollars, rigged with a pull and a bell is an excellent device and accurate. The bell gives warning that the load is registered, and the count can not be tampered with, and there is no removing hand leathers and fumbling with pencils or pins in order to operate it. The registering device may even be rigged up to operate with the foot, or automatically, as the

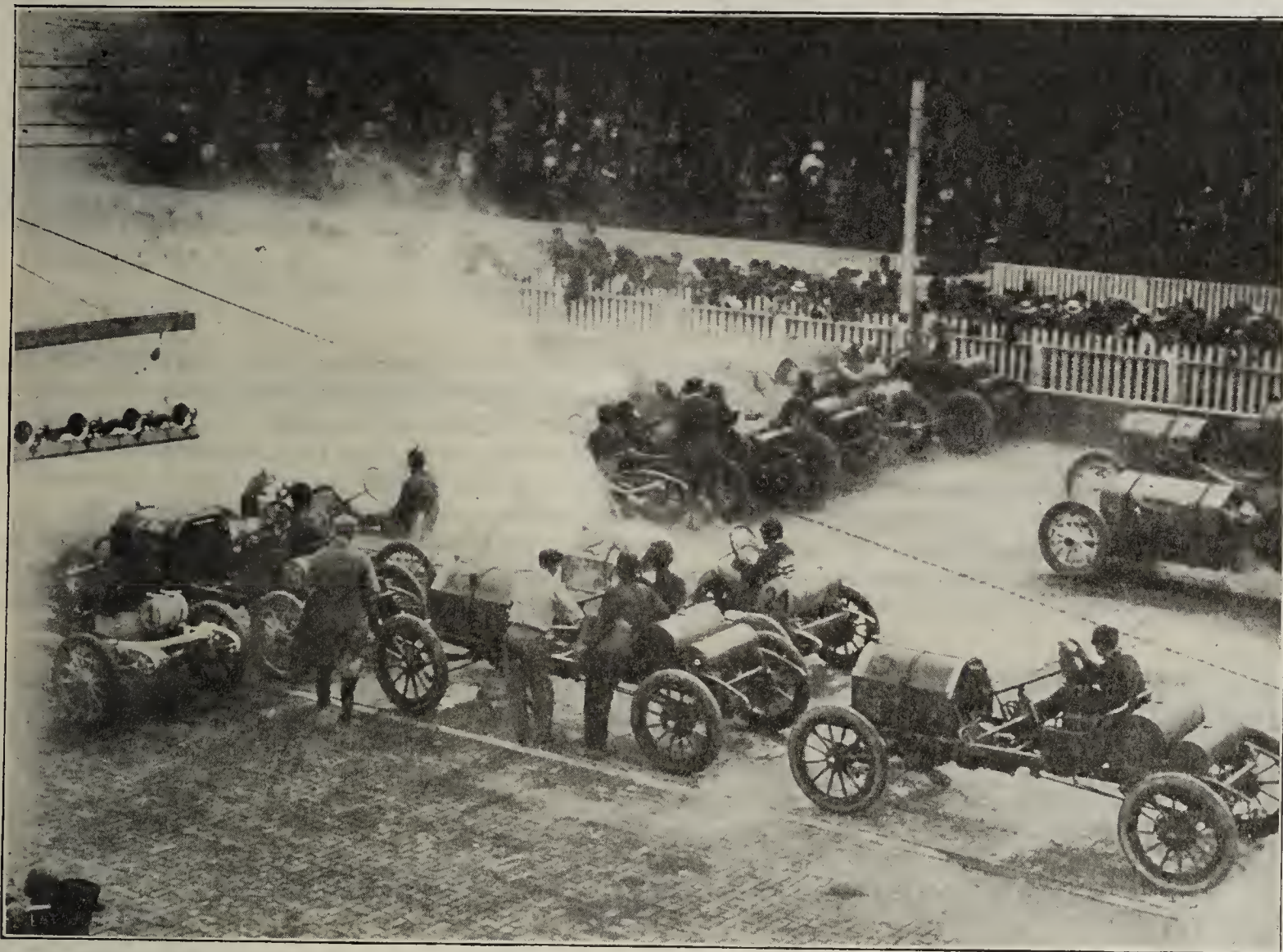
of brick have absorbed this artistic spirit and amply seconded architects' efforts. Brick are made in all kinds of shapes and colors, and beautiful effects are obtained by the use of even the roughest products, that, a few years ago, were used only in foundations, rear walls, and in such inconspicuous places. We have indeed reached a burnt-clay period. Our ablest architects are not only designing their most beautiful decorative work in fine terra cotta, but are seeking, particularly in domestic architecture, to make all of the exterior of brick, using the different colors and working up the patterns into quaint and attractive designs. The result is that all over the country we see beautiful buildings of brick that will equal the work executed in that material, and equal to anything that has been done by the English, the Flemish or the Assyrian architect, and far more dainty, pleasing and artistic than the nearby work that has been wrought, at infinitely greater expense, in granite and marble and stone.—The Improvement Bulletin.

FINEST BRICK PAVED MOTORDOME IN THE WORLD SETS NEW RECORDS.

Indianapolis Speedway Fine Example of Best Method of Paving Roads and Highways.

AT LAST VITRIFIED PAVING BRICK has come into its own. Perhaps it has taken the public an unaccountably long time to find out that it is and has been for many years the best paving material on earth, due, no doubt, to the poor work of contractors in the majority of our municipalities, but it is gratifying to see that the public is gradually awakening and beginning to realize the true worth of vitrified paving brick, and to appreciate that it is indeed an ideal material when properly used. One of the greatest instrumentalities in educating the public along this line has been the Indianapolis brick paved motor speedway. Espe-

following to say regarding the recent meet: "Thrilled again and again by the fearless driving of the world's most noted motor pilots in spectacular dashes over the greatest speed arena of modern times, and smiled upon by nature in a kindly June-like way, 15,000 spectators witnessed the shattering of fourteen world's automobile track records at the opening of the first 1910 Indianapolis Motor Speedway meeting yesterday afternoon, where nine well-contested events were run without injury to the driver or mechanic to mar the day. It was one of the grandest ensembles of daring and mechanical skill motordom has ever known, and the cheering throng paid



Start of The Ten Mile Handicap Race Run During the May Meet at Indianapolis Motor Speedway.

cially has this been true of late, for since the big motor meet held in Indianapolis in May the newspapers all over the country have published complimentary articles regarding this fine brick paved track. Some of the best newspaper correspondents and magazine writers in the United States were present at the meet, and the consensus of opinion was that the two miles and one-half of carefully laid brick is the finest, fastest and safest track in the world.

The Speedway was referred to in a recent issue of a popular automobile journal as one of the wonder places of America, declaring that its brick paved motor course and its broad steam rolled aviation field is the talk of America's sporting circles. The motoring and aviation magazines pronounce it an achievement that only courage, money and a fine spirit could develop, while the automobile manufacturers regard it as one of the greatest motor developing plants in existence. An article appearing in a well-known daily paper has the

tribute in applause to the intrepid winners as they flashed across the tape in a haze of dust and smoke. Lightning fast the two and a half miles brick paved track lay stretched in the sun, and, before the starter's checkered flag had fallen on the finish of the last race, proved itself the premier motordome of America, as well as the safest way an auto pilot has ever traveled to win glory and fame in the game where luck and chance go hand in hand."

Indeed, the meet was an unusually successful event in every particular; the three days of fast driving passed with increasing wonder at the speed of the track, each day developing new world's records. The world's most famous drivers, with their steel monsters, thundered over the smooth track, circled the oval, and made the hitherto dangerous turns at high speed. The 100,000 spectators who witnessed the three days of sensational driving were awed with the spectacular exhibitions, for never before in the history of racing did



At the Finish—Judge's Stand and Aviation Field on Right.

scores of high-speed cars travel on an average at the rate of seventy-five miles an hour. That the victors in their events at times far exceeded that speed with safety tells the story in a few words of the excellent condition of the track.

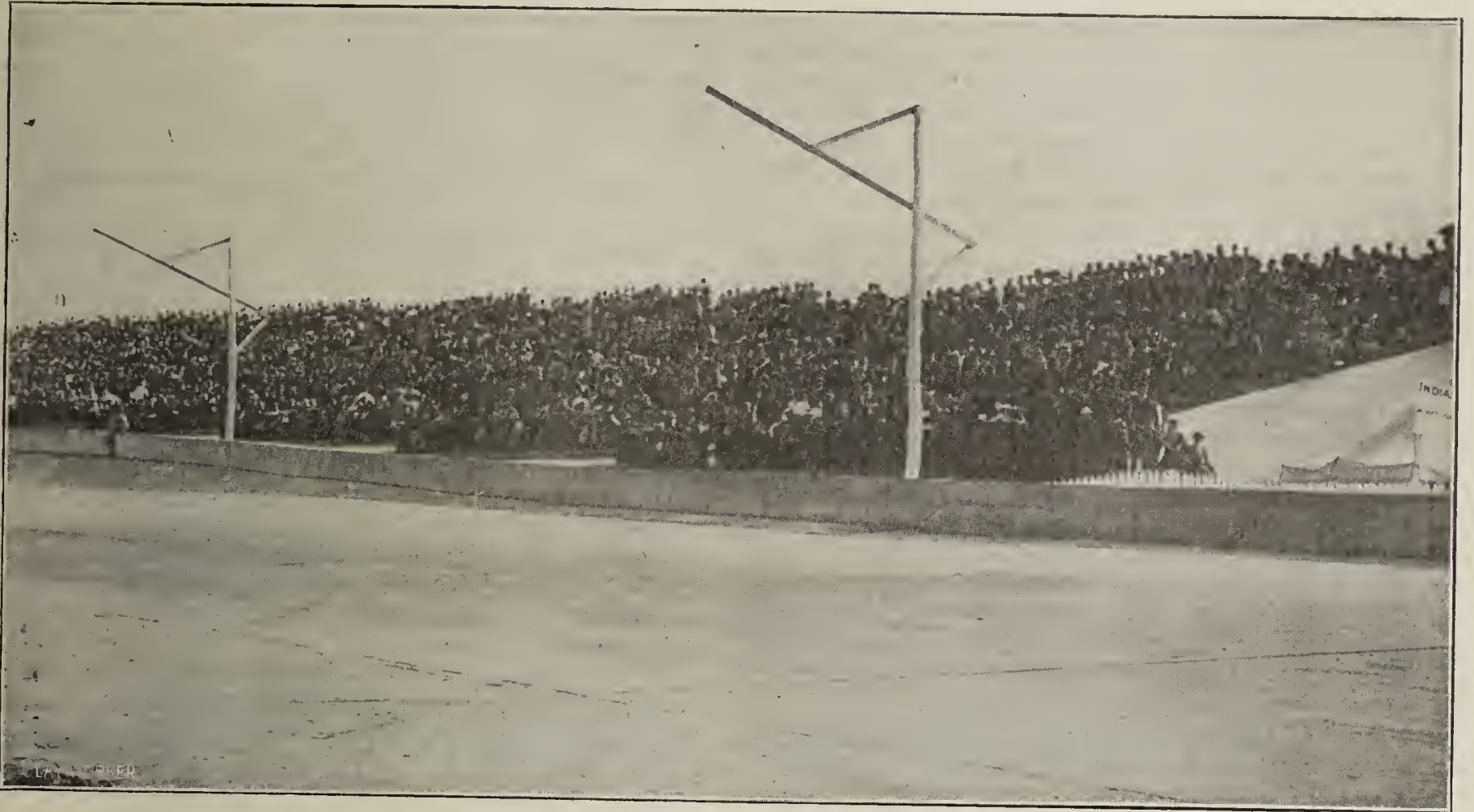
The paving brick experts' expectations were fully realized, and their prophecies proven to be well founded. That vitrified paving brick has won a notable victory over other paving materials, and stood the hardest possible tests in a remarkably fine way, there is little doubt. The recent meet tested

the track, and demonstrated that it is so smooth, durable and perfect in every way that it will be able to stand the strain put upon it by the heavy speeding autos for years to come.

So successful was the recent meet and so satisfactory was the track that prominent automobile enthusiasts are busily engaged in promoting similar tracks for other large cities. The example set by the Indianapolis officials has been a surprising impetus to motordome racing, which is now being boomed in a most astonishing manner throughout the country.



Starter Wagner Signaling the Drivers in One of the Races at the May Meet of the Indianapolis Motor Speedway.



Approach to South Turn on Indianapolis Two and a Half Miles Brick Paved Track.

"The auto racing craze has reached a goal which few of the wildest enthusiasts ever anticipated. The article appearing in a recent issue of the Indianapolis Star has the following to say regarding this exciting sport:

"It is evident that the type of automobile racing witnessed by over 100,000 spectators at the Indianapolis meet has a firmly intrenched popularity, for the reports of the planning of new motordomes are coming from many points. Following the announcement that Philadelphia will have a big motor speed-

way comes the news from the far coast that a chain of motordomes is planned in that section. The idea to have an automobile racing circuit embracing the Pacific slope cities is not a new one. However, the plans of the promotion have taken definite shape, and it appears that the project is assured. It is noteworthy in all this enthusiasm for motordome construction that New York City is trailing the procession. The reason undoubtedly is the high cost of property. The construction of the new Philadelphia track will fill a long-felt want in



Finish of Five Mile Race. The Brick Paved Track is as Smooth as a Dancing Floor.

the East. According to plans, the course will be located at Clementon, N. J. This is about twelve miles from the Quaker City, and, what is more important to owners of automobiles in New York is, it is one minute's ride from the big automobile road leading to Atlantic City. Moreover, seven State roads lead into Clementon. The location is said to be ideal. High, dry land, comprising 663 acres, has been secured for the course. George H. Robertson, the well-known racing driver, who will supervise the construction, is enthusiastic over the project. It is understood a feature will be made of 24-hour races, and with this end in view an electric light plant will be a part of the equipment. The announcement of the promoters states that the track will be built of solid concrete, surfaced with champed vitrified brick, and so constructed that cars of high power will attain a speed greatly in excess of any so far reached in automobile racing. This necessity of construction will obviate the necessity of either oil or water sprinkling, and will be entirely free from dust and dirt, and virtually eliminate the cost of repairs, the latter having always been a matter of great expense in maintenance of existing tracks outside of the Indianapolis Speedway. The track will be oval in shape and two miles in length. Similar tracks are to be built in San Francisco, Portland, Ore., and another site yet to be named, on the Pacific slope."

We are not surprised to read these announcements. The fact that other cities are to build brick tracks is but a natural outcome of the great success of the Indianapolis Speedway. That other paving materials have proven unsatisfactory and caused the death of many people through their poor qualities and inability to withstand the strain put upon them, not possessing the necessary smoothness and durability required, has resulted at last in the solution that should have been apprehended long ago.

The experiences that Indianapolis promoters had with the first track, on which the present track was built, were not unusual or unexpected by the expert paving men. The old track was made of taroid macadam, and, though carefully constructed, and claimed to be the best possible construction of the cheaper materials, it proved a failure, and caused the death of seven people during the races held there August 25, 26 and 27, 1909. The macadam could not stand the severe test made upon it by the heavy machines traveling at times at the rate of seventy miles an hour. After the old track had been used a few hours it became rough and so dangerous that high speed was almost impossible.

The facts concerning final determination of the owners to let a contract calling for 3,500,000 paving blocks, to be of the finest quality and laid under the supervision of the best paving experts in the country, the selection of the Culver blocks, made by the Wabash Clay Company, of Veedersburg, Ind., the careful construction of the track at great expense, and the trial tests made last winter, which gave the officials great encouragement in boosting the recent meet, have been presented to the readers of THE CLAY-WORKER in the September and October issues of last year and our big anniversary issue of January, this year. There is no need, therefore, of our going into detail on these subjects; suffice to say that the present track is an ideal structure in every particular, and is the highest point in perfection along paving lines.

That pavements made of good vitrified brick or block, properly laid with suitable expansion joints and cement filler, are the finest, most durable, sanitary and cheapest in the long run is a well-established fact, so that the satisfaction felt by the officials accruing from the success of the recent races, in which it was demonstrated that vitrified brick is the best possible material, is only natural.

One of the principal reasons for using the vitrified block was the desire for the greatest degree of safety. The recent meet proved the efficiency of a brick paved track in this regard. The track is as smooth as a billiard table, and so sound and perfect that in all probability it will have to its credit at the end of the present racing season all the world's

records for both short and long distance. The track is the fastest motor track in the world, and has the distinction of being the only one made of vitrified brick. It is soon to lose the latter honor, but will always retain the credit at least of being the first.

FACTS ABOUT THE INDIANAPOLIS SPEEDWAY.

Seventy-five to eighty miles an hour is just a little jaunt out at the big Indianapolis Speedway course these days.

The meet seems to have proven conclusively that the local course is as danger-proof as can be expected.

Records went down before the onslaught of desperately driven cars, and the new course justified all the hopes of the brick paving experts that it would surpass all others for speed.

A special train was used in transporting the 3,500,000 block from Veedersburg to the Speedway, 100,000 block being delivered daily. Over 200 men were employed in the construction work at the track.

The trial pavement was 100 feet long, and built of Culver block, made by the Wabash Clay Company, of Veedersburg, Ind. The Culver block were subsequently adopted for paving the entire Speedway two and one-half mile track.

All of the many paving representatives were asked to lay trial pavements at the Speedway last year, in order that the very best material might be selected. Several trial pavements were laid and severe tests made, with the result that the vitrified brick proved its superiority, and there was little delay in fixing up the contract for 3,500,000 blocks and immediate work of regrading the track and making ready for the laying.

The old surface was made ready for a foundation for the brick pavement by adding sufficient crushed limestone to fill up all the ruts and depressions caused by its use during the races and resurfacing with crushed limestone to the depth of 1½ inches, thoroughly rolled to a uniform smooth surface, conforming to the grade of the finished track. Upon this foundation was placed a uniform 2-inch sand cushion, upon which the brick were laid. This sand cushion afforded a maximum relief from vibrations made by the impact incident to its use by automobiles or whatever travel it may be subjected to, this provision for the relief being so slight that no weight that is likely to come upon the pavement will crush the bond of the cement filler with which the interstices are completely filled. The brick were laid on this cushion face edge up, at right angles with the straight away track, and continuing at right angles until their line intersected a line marking 45 degrees of the curve, dropping off a half brick at a time as the point was reached. From this line the brick were continued from a herring-bone joint for the remaining 45 degrees of the curve at this point, then the right angle courses were again taken up and continued along the straight away track. After the brick were thoroughly inspected and those regarded as objectionable removed, they were thoroughly rolled, all slight depressions ironed out, compacting the brick into, as well as compacting the sand cushion underneath, insuring the perfect cushion desired. When the various sections were made ready for the first coat of filler, no greater depressions could be found than a quarter of an inch in the length of a 12-foot straightedge, in whatever direction it was placed. Expansion was provided for by placing a 1-inch board parallel with and adjacent to the curb, which remained in place until the track was in all other respects finished. The board was then withdrawn within twenty-four hours after the

application of the cement filler and the crevice filled with a pitch filler.

The rigid rules of the National Paving Brick Manufacturers' Association, even to the use of their prescribed mixing box, so shaped as to insure uniform mixing of cement filler in proper proportions of one to one sand and cement, were enforced throughout, as the best paving brick experts in the country were on hand to see that the work was properly done, and to assist the owners of the track in fulfilling their desires to have nothing but the best construction.

Mr. Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, virtually camped on the track, and carefully guarded the work as it progressed. From start to finish the work of construction was practically under the supervision of Engineer W. T. Blackburn, of Paris, Ill., who is one of the ablest experts in the employ of the National Association. He had several able assistants at the Speedway, who did their full share in making the track the finest, safest, and, in the long run, the most economical pavement in the world.

The brick surface was completed the first week in December, with the exception of the place left for the insertion of the final brick, a gold-plated solid silver brick weighing fifty-two pounds and valued at \$500. All the Speedway officials, brick experts and a crowd of enthusiastic autoists were present on December 17 to witness the ceremony of laying of this brick in this pavement, and, incidentally, marking the last of a total of 3,500,000 brick.

Trial tests were made by several of the world's most famous automobile drivers December 17 and 18, with the result that several world's records were broken, although it was bitter cold and perhaps much better for a polar expedition than motor speeding. While these trials were few in number, the records established in such wintry weather point to the fact that the track is capable of almost unlimited speed under fair conditions. No one disputes the fact that the former surface of the course was unsatisfactory and very dangerous.

Owners and promoters of the Motor Speedway have succeeded in their efforts to make a "sane and safe" track, for not a single serious accident occurred during the May meet, although many world records were broken and the machines were run at fearfully high speed.

"If there are any accidents or fatalities on the Speedway during the races, the cause will not be found in the roadbed of the course," declared Coroner John J. Blackwell before the races. He said further that he had taken time by the forelock and with Mayor Shank had visited the Speedway and looked it over. "I don't see anything that could be done to make the wonderful race course safer. The track is the finest I ever saw, and a search for a flaw in the roadbed would be like a search for the proverbial needle in a haystack."

Nearly every pilot enlisted in the Speedway events agreed that no other track they have ever raced upon equalled the Indianapolis oval. The two and a half miles brick track is as smooth and clean as a model housewife's floor.

"I am amazed at this wonderful track," said Louis Chevrolet, after he had sent his Buick around the course at a merry clip. "I have been on all the tracks, and there is none in the world to compare with this."

The recent meet was most satisfactory in every respect, and Carl Fisher and the others are much encouraged in that it was amply demonstrated that brick makes a very superior

surface for speedway racing. Since the meet statisticians have been compiling interesting dope which shows just how fast the track is. Not only did Oldfield in the Benz smash the one-mile speedway record, lowering it to :35.63, but the other cars as well ran remarkably fast.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



DEMAND AND PRICE for brick are absorbing features of the trade under all circumstances, and perhaps never more so than this spring. Contractors exhibited a better disposition to buy, but, after all, movement was somewhat limited.

During the week of June 10 brick dropped to \$6. This is a drop of 25 cents in the price, and is due to a number of causes. The Atlas, Rose and Jova yards, near Roseton, were temporarily crippled by a strike for 20 cents a day additional. Memorial Day stopped all operations. In fact, it was what might be termed a three-day holiday, since very little was done after Saturday noon until Tuesday morning. And that caused some difficulty in disposing of brick.

Another cause was the quantity of old brick available. Builders want new, and refuse to buy unless it is supplied.

Something like 69 cargoes arrived during the week, and 59 went out. Despite the continued talk of poor business, the result so far is better than last year, and that in turn was better than 1905, which up to last year was the best. The price was about \$1 better last year, which makes some difference in the profits. The old brick are all here, it is said, and new will come exclusively after this. About 20 cargoes were left over the week of Memorial Day, but there were no arrivals.

Raritan River common hards are active at \$6@6.25. One firm is using North River boats to hurry its deliveries here. Front brick are wanted in a little larger quantities, and enameled are holding their own in a fair market. Light hards sell at \$4, but as this is written there is no market.

There is strike talk at Dutchess Junction and Fishkill, but it has not developed into anything serious as yet. Apparently it is a general movement for higher wages. But with brick \$1 lower than last year, and a demand for increased wages staring them in the face, manufacturers wonder where they will find profits.

Not much change in price has occurred in the better grades during the month, but the endeavor to dispose of old brick, and the determination of buyers to have new, have combined to produce a somewhat weak market in old stock, and it has been possible to buy below figures quoted last month. Some Hudson River common have sold as low as \$5.50 for good stock, the only difficulty being the fact that users want new. New brick are held up to \$6.50, and the better grades bring that easily. According to one factor, the quotations run in the wholesale district about as follows: Front buffs, No. 1, \$28 to \$30; grays, shaded and specked, \$32; white, No. 1, \$32; Hudson River common, \$5.25 to \$6.50; light, hard, \$4.75 to \$5.25; pale, \$3.75 to \$4.25; No. 1 fire American, \$25; No. 2, \$20; Scotch, \$35. In other directions not much change is noted. Conditions are reasonably satisfactory, and sales maintain about an average, taking one week with another.

The Gillender Building, on the northwest corner of Wall and Nassau streets, twenty stories high, has been torn down to make room for one thirty-two stories high. It is the first instance where a modern fireproof office building has been torn down to make way for a more modern and larger building. The Bankers' Trust Company bought the plot, 25x74 feet, for \$1,250,000. The building upon it did not pay a sufficient return upon the investment, even though it cost to build \$500,000. They tore it down, and will erect one on the site to cost \$4,000,000. The contractor got \$50,000 for tearing it down, and it took 250 men about thirty-five days. Perhaps nothing in the building history of New York more clearly shows the marvelous progress in building during the past few years. Perhaps this is only the beginning of a long series of such demolitions, and all would make for the improvement of the city.

BURTON.

REMINISCENCES OF TILE DRAINAGE AND TILE MACHINES.

Written for The Clay-Worker by George S. Tiffany.

POROSITY OF DRAIN TILE.

A CONFESSION OF IGNORANCE is more frequently as good for the soul as a confession of sin, for it is an appeal for information. We believe we have never met a man, unless he was a fool, from whom we could not learn something. The man who asks many questions of an exhibitor may at times appear foolish, but he will learn something and certainly the one who for fear of appearing ignorant says nothing, looks wise and tries to create the impression that the Irishman had of the owl, "Ye don't say much, but ye keep up a divil of thinkin'," is the greater fool. Every candid question deserves a respectful answer. So the man who wanted to know how the water got into the tiles was told that it got in at the joints, and when he looked incredulous, this was illustrated as follows: "You have probably left the pail with which you water your horse in the sun until there was a crack across the bottom through which the water rushed, and you had to get another pail. There is just such a crack between the ends of the tiles, and when there is an excess of water in the ground there will enough water rush in to fill the tiles." This seems very simple, nevertheless the question was discussed in the Tilemakers' convention many years afterward.

It was stoutly maintained by those who used plunger machines that the auger machines made the tile too compact, that the tile made by plunger machines were more porous, and therefore more suitable for drainage purposes, for the water would pass through the shell of the tile. Tiles of both makes were sealed at one end, set in soup plates and filled with water, and were placed on a table before conventions. It was shown by this test that the water passed through neither one only as it evaporated from the outer surface.

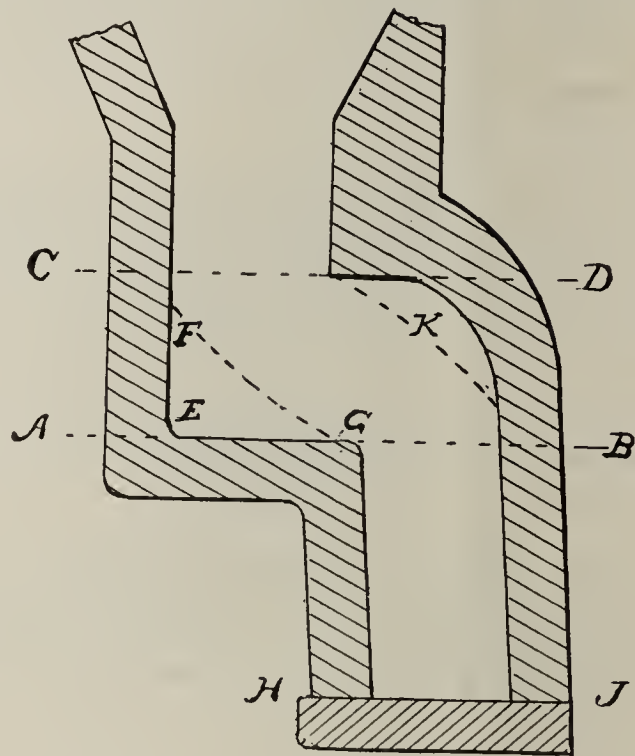
Thus the question, "How does the water get into them things?" was decided thirty years ago; but in regard to cement tile, it is asserted that they are far superior to clay tile because the water can pass through the shell all along the line. If you want to make sewer pipe, you will be told that concrete will crystalize and become perfectly impervious to water and make a perfect conductor. They ought to accept Puddinhead Wilson's advice: "When you are in doubt, tell the truth." What is the truth? My reader, let me call your attention to a suggestive fact. Have you ever watched the formation of conglomerate rock? Within a half mile of my home are some very hard specimens of this rock which twenty-five years ago were quite soft. They lie at the foot of a bank, and above them are layers of clay, sand and gravel with lime. These have been washed from the places by rain and commingled by rolling down the bank, and when at rest have hardened into a solid rock.

Query: If these loose elements in their crude state will so unite, why will not the joints of cement pipe fill and cement together so as to prevent the influx of water?

The introduction of the auger machine led to new and improved features in drain tile factories and in methods of manufacture. The long sheds in which the tile were dried by the natural air, and were used only through the summer months, gave way to well-built factories in which the tile were dried by steam and operated all the year round.

The pioneer of this new system of manufacturing was the Joliet Mound Company, of Joliet, Ill. We believe the manufacture of tile at "The Mound" was first commenced by Mr.

Adams, of Joliet, for in 1862 there was in the factory a drain tile machine of English manufacture, a double discharge plunger machine, and, in the lower story, an engine and pug mill. The clay was ground, "balled," thrown up onto a platform, and from the platform to the upper floor, and wheeled to the machine. The machine was operated by hand, and the tiles were lifted from the cutting table by a wet mandrel and laid gently on the floor. The machine was on wheels, and was moved along as the floor was covered. The company was organized and purchased the rights under the patent of the Tiffany tile machine in 1862, and the writer installed the first machine. They paid \$3,500 for the machine and the rights for the state, and the sale was effected by Mr. Philip Thurber, agent for Volney Spauling, assignee. The machine ground the clay, made the tile, and they were sent aloft on an elevator, wheeled to the drying floor and set on end. The same engine was used which had before served the purpose of grinding the clay; a great improvement over the former



Section of a Socket Die.

method. The demand for drain tile would not warrant the erection and equipment of a factory, notwithstanding the need for them was manifest, for from the suburbs of Chicago to Decatur the land was a good hunting ground for ducks. Every winter the people suffered from the isolation caused by "mud blockade," and in many places they were obliged to burn corn for fuel, in a state having an abundance of coal, because they could not haul the coal. It was said that there were more farmers' wives than people of any other class in the lunatic asylum. No wonder. How could a woman keep herself or her house clean in the muddy season? The women pioneers of the prairie suffered more than those in the forests. The most common conveyance was the hind wheels of a wagon with two horses to draw it. It was in Illinois, I believe, that that most pessimistic idea of human life was written by a settler to a friend in the East: "Come to Illinois, John, and buy some land, to raise corn, to feed hogs, to sell the hogs to get more money to buy more land to raise more corn, to feed more hogs to sell," etc. I was told at one time that nearly every farm in Illinois was mortgaged. Spare your tears of sympathy, my friend, for the poor Illinois farmer; he had only

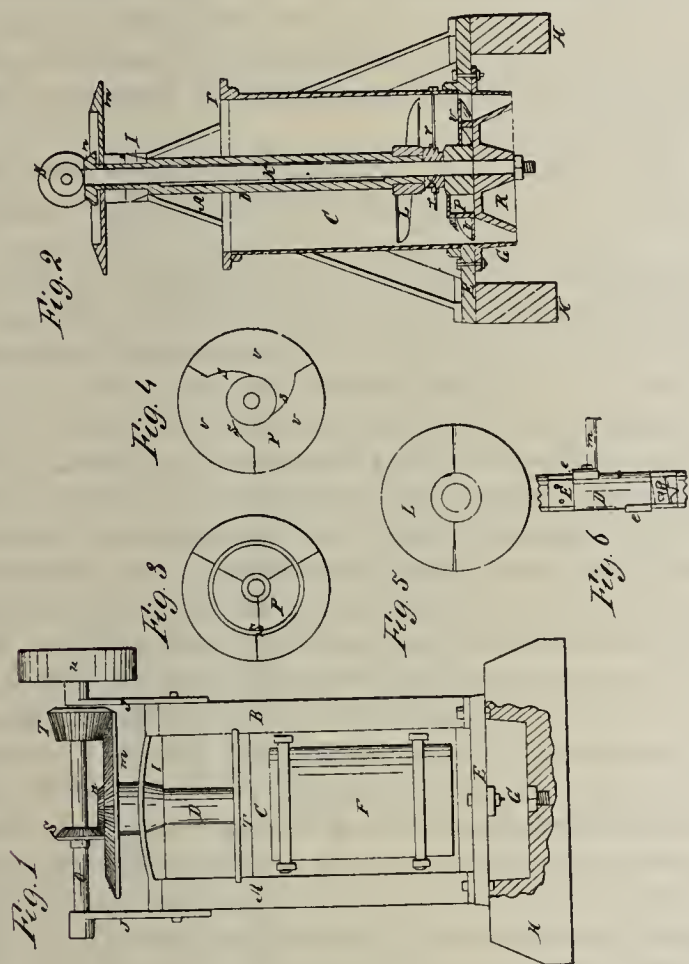
mortgaged his farm to buy more land to raise more corn to feed more hogs, etc.

About sixteen years later I sat for several evenings in front of a hotel in one of Illinois' now prosperous cities and listened to the conversation of a number of retired farmers, who had leased their farms. It was all about hogs and corn and the prospects of the corn crop. After they had considered every state noted for that product, for diversion rather than for information I said: "Gentlemen, you haven't said anything about the corn crop in Michigan." Then they did laugh. "Corn in Michigan!" said one derisively. "Why, man, they don't raise corn in Michigan." "No, just popcorn," said another. "Tucket," almost whispered, a third, as though he would not spend any effort on such an absurd question. "Well, gentlemen, I can tell you what the farmers do in Michigan." "We would really like to know," said one in a listless tone.

G. S. Tiffany,
Tile Machine.

No. 45,539,

Patented Dec. 20, 1864.



Witnesses;

A. H. Tiffany,
G. H. Dwyer

Inventor
George S. Tiffany

"Michigan is a fruit-growing state, and many farmers have orchards which would support them if all their field crops were cut off. They raise a great variety of crops, and the loss of one does not seriously affect them. Many Michigan farmers have more of the comforts of life on their farms of 160 acres than an Illinois farmer with his thousand acres. If he wants to buy his wife a new dress, he doesn't hitch a span of horses to the hind wheels of a wagon with a box on them, put in a few bushels of corn and drive wallowing through the mud to market. No, he hitches a nice span of horses to a surrey, puts his wife and children in, and drives at a good round trot over good roads to the city. No mud blockades. We have good roads in Michigan." "Haven't we good roads?" "Did you say good roads? I have seen a couple of ditches with a slough between, but no good roads.

Gentlemen, I do not want to say anything against Illinois; she has done many times more for me in my business than Michigan ever has, but I don't want you to say anything against Michigan." There was an immeasurable need for drain tile in Illinois, but the demand was not sufficient to sustain the plant, so the company engaged in other manufactures.

They made a good many Bath brick. This is not one of the lost arts; it's one of the abandoned arts. The art of nickel and silver plating has made the scouring of knives and forks with brick dust entirely unnecessary. The principal business of the company was the manufacture of sewer pipe for the city of Chicago, and they used the little frail machine we have illustrated for several years for making the small sizes of pipe.

The pipe were run out of the machine into zinc troughs, cut off, and carried to the drying floors and set on end. The company opened a sales yard in Chicago and did a profitable business. The pipe was a light-colored earthenware without socket or glaze, and rings were made of a larger size to cover the joints. The city would permit the laying of unglazed pipe in the streets, but not the laying of pipe with sockets, for it was maintained that the socket "was an element of weakness" and that with it it was difficult to get a perfect sealing of the joint. The rings were deeply creased in the die, so that after being burned a slight stroke of a chisel would separate the ring into two or more sections. One section was laid in the trench, covered with cement, the joint completely covered with cement, and the other sections of the ring bedded in the cement. The cement then used was water lime, and we presume the upper sections of the rings were used to protect it. With good Portland cement the upper sections would be unnecessary. The socket is a very expensive part of the pipe. In this you will agree with me, if you fairly consider the more expensive machine required to make the socket, the irregular motion and extra time required, the extra space the socket pipe requires in the drying floors and in the kiln, the greater liability to cracking in drying and burning, handling and shipping. The "element of weakness" in the socket was probably owing to laminations, for we consider that there is no form of die better designed to produce them than the socket die.

All our experience in clayworking by machinery has established the conviction that laminations are caused by the slipping of the clay upon itself while passing through the die. We have written upon this subject before for THE CLAY-WORKER, and illustrated it with drawings of dies of different forms, but all the illustrations were of dies through which the clay was forced in a direct line with the expressing auger. In molding the socket there are two deviations from the line of pressure, and each one at a right angle. We give a sketch of a section of a socket die to illustrate.

The clay would issue from the orifice of the die on the line a b in the form of a pipe until it struck the face of the socket die on the line c d, when it would flow laterally until it struck the outer mold of the socket die, by which it would be deflected toward the orifice of the socket mold on the line h i. In making this movement some clay would be left stationary in the angle at e, on which it would slip, forming a seam on the line f g. It would not pass with uniform speed around the curve at k, and would form a number of seams or laminations in this elbow of the socket. It seems needless to say that a socket so formed and exposed to the action of the water and frost would soon begin to flake off on these seams, unless the pipe were vitrified.

(To be continued.)

It may be hard on the roofing business, but it will be better for street paving if the asphalt people will keep so busy at promoting composition roofing that they will neglect boosting this product under new names for the old combination for street paving. The real quality street is the one paved with brick.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO



TOLEDO BRICK MANUFACTURERS have been kept busy supplying the demand of their customers, but it is noticeable that a large part of the business is coming from the outside territory. Building operations in Toledo have been rather light this season, thus far, and the fact that residence structures, requiring only the bulk of the work has been of

a few brick for foundation purposes, and that commercial and industrial buildings have been extremely scarce up to this time, the local field has not been as prosperous as was anticipated by brick concerns earlier in the season. The month of May fell somewhat below last year in Toledo proper, there being but 150 permits for new structures of an estimated valuation of \$423,950, as against 143 permits during the same month in 1909, with a valuation of \$565,350.

The first five months of the year have also shown a decrease as compared with a similar period of 1909. From January 1 to June 1 this year 625 permits were issued for new buildings of an estimated valuation of \$1,456,302, while for the same time last year the permits numbered 546, with the valuation of \$1,650,901. Present prospects point to stimulated activity in building business here within the next thirty days, however, and the indications warrant the belief that the balance of the season will prove more prolific of brick business. A number of large industrial contracts have been recently signed up, including a new roundhouse and machine shop for the C., H. & D., to cost in the neighborhood of \$100,000, a factory building for the Isaac Kinsey Co., to cost an equal amount, a \$200,000 structure for the General Electric Co., a new building for the Citizens' Ice Co., a \$150,000 plant for the Warner Manufacturing Co., and a \$100,000 plant for the Castle Lamp Co. With these prospects in view, it would seem that the demand for building brick in Toledo proper will be greatly enhanced during the next few weeks. In the meantime local manufacturing concerns are finding a ready market for all their products in the outside surrounding territory.

Michigan has been a fruitful source of business, and local concerns are still shipping large quantities of building brick into the city of Detroit itself. Prices are holding very firm under these conditions, foundation brick being quoted at \$7.50 net, common brick at \$7, and face brick at \$8 per thousand. All of the local plants are running at or near capacity, and so brisk has been the general demand that there is but a small accumulation on hand at Toledo brick yards. Other clay-working industries are operating under normal conditions, and report plenty of orders for all of their products. Sewer pipe concerns say that there has been at least a normal use of their wares by municipalities, and that drain tile has found a ready market among farmers, who have enjoyed unusual prosperity for some time and are willing to invest some of their surplus cash in the improvement of their farms. On the whole, the present condition is not at all a bad one for clayworking industries, and while there are occasional complaints, they are the exception rather than the rule.

A large number of school improvements are already under way or will be within a short time, furnishing a market for an enormous quantity of building brick during the balance of the season. Among those which are now certainties are two new high school buildings in Toledo, to cost in the neighborhood of \$500,000 each, three in Cleveland, costing \$15,000, \$65,000 and \$100,000, respectively, two in Cincinnati at \$20,000 and \$12,000, two in Columbus at \$30,000 and \$10,000, Crestline, \$45,000, Warrensville, \$15,000, two in Massillon, \$30,000 and \$11,000, Monroeville, \$20,000, Greenwich, \$8,000, Barberton, \$35,000, and Ashland, \$40,000. A number of others are con-

templated, and will undoubtedly materialize in the near future.

Because the city council of Toledo provided only \$8,000 for the purpose, and the lowest bid, that of the Ohio Paving Co., was \$8,500, work has been held up on the paving of Auburn avenue until more money is forthcoming.

The plant of the Standard Brick Co., at Empire, Ohio, was recently destroyed by fire, originating in a drying tunnel. One hundred men were thrown out of work at the plant, which is owned by Pittsburg capitalists. It will be rebuilt. The loss was about \$25,000.

Edward F. Bolen, manager of the Lima Brick and Drain Tile Co., at Lima, took his life by means of an ounce of carbolic acid. By his written confession he was so annoyed by business worries that he feared the loss of his mind. Before swallowing the fatal drug he crawled under a clump of bushes out of sight of passers-by. He came to Lima from Morenci, Mich., about four months ago.

The Adams Co., of Zanesville, Ohio, were recently awarded a handsome paving contract at East Palestine, Ohio. The agreement calls for the paving of Clark and Martin streets at a cost of about \$20,000.

Bids are now being received for the two new high school buildings at Toledo, and it is expected that ground will be broken for the improvement by the end of June. The bids will be opened on June 18, and it will take a year and a half to complete the work.

The tile factory located at Hatton, Ohio, was recently destroyed by fire. It is estimated that the loss will approximate \$2,000.

W. W. Southerland, of Toledo, is constructing a \$17,000 flat structure on Delaware avenue. The building will be of brick, three stories high, and will accommodate six families.

The property of the Logan Brick Manufacturing Co., excepting one adding machine, was recently sold by Receiver P. W. Degnan, of the Federal Court, to A. A. Reilly. The property consisted of an adding machine, the company's books, paper and office stationery, including disputed bills receivable amounting to \$7,211.97, and brought the munificent sum of \$60. Judge Taylor ordered the other adding machine surrendered to the makers, the same not being paid for, and applied the proceeds of the sale to make up the difference.

The Lucas county commissioners at Toledo have entered into a joint agreement with the Washington township trustees and abutting property owners for the pavement of Detroit avenue, from Phillips avenue, West Toledo, to Sylvania avenue. The distance to be paved with a 20-foot vitrified brick pavement is about a quarter of a mile, and will cost \$13,300. Of this expense the county will pay half and the township and abutting property owners each one-fourth.

In a recent address before the Business Men's Club on "Inland Waterways," Howard L. Shepherd, treasurer of the Toledo Shipbuilding Co., and president of the Chamber of Commerce, went on record as being opposed to the proposed deep waterway between Toledo and Chicago, as planned, claiming that the project is impracticable for several reasons. Chief among these is the fact that it would take twenty-two hours longer to make the trip from Buffalo to Chicago by way of the proposed route than by way of the Straits of Mackinaw. In covering the former route the time would be consumed in passing the various locks, and in the fact that one of the largest vessels could not move through the canal at a speed to exceed four miles an hour.

T. O. D.

Prehistorical South American Pottery.—Sir William Bailey read a paper before the Manchester Literary and Philosophical Society regarding the pottery which his friend Hewitt Myring has discovered in Peru. According to calculations, some of this pottery found was made 10,000 years ago, and belongs to the Chimas nation.—Keramische Rundschau, No. 11, 1910.



French Kaolin Syndicate.—A French syndicate with headquarters in London is now forming with the object of controlling the kaolin output and so regulate the prices to be paid for such material.—*Moniteur de la Ceramique*, No. 1, 1910.

Porcelain Industry in Sweden.—The fourth porcelain pottery in Sweden will be shortly erected at Lipkoping. The factory will be ready for occupation by the first of the year. It will have four kilns and employ 200 men. The Rorstands pottery is the oldest of the potteries in Sweden, and was erected in 1726. The value of the porcelain manufacturing in Sweden amounted to four and one-half million kronen last year.—*Keramische Rundschau*, No. 10, 1910.

Black Bodies for Pottery.—It is impossible to obtain a clay which will burn black otherwise than by composition. Manganese by itself will only give a dark brown body and it will take from 20 to 30 per cent to get proper effect from such mixture. When a jet black body is required, iron oxide should be mixed with the clay. A mixture of 60 parts of clay with 34 parts of manganese and 6 parts of oxide of iron will give a body which will burn black throughout.—*Keramische Rundschau*, No. 9, 1910.

Clay Stove Manufacturers.—The first annual convention of the German Association of Clay Stove Manufacturers was held in Berlin on February 25 last. The Association has 178 members, as against 173 last year. The most important question before the convention was the wage question. After a long debate it was decided that the executive committee should settle the matter of wages with every labor union separately. The next convention city will be Dresden.—*Keramische Rundschau*, No. 10, 1910.

Stoneware Bodies.—To make a better body than the ordinary stoneware clay gives, it is necessary to use some additional material. A casting slip for the use of pottery and stoneware articles with a body of the composition type is as follows: 55 parts of stoneware clay, 21 parts of fine glass sand or flint, 24 parts of feldspar. If the body burns too close, part of the clay can be substituted for flint, and the largest amount of clay used can be 65 parts, and only 11 parts of flint. These bodies mature at a temperature of Seger Cone 5A.—*Keramische Rundschau*, No. 10, 1910.

Melting Points of Cones.—In the annual convention of the Association of German Manufacturers of Refractory Clayware, Dr. Hoffman reported further on the determination of cone melting points. The investigation is not yet closed, as all the work has been so great in volume that it was impossible to close the same at this time. The work done was mostly in testing the melting of the cones in commercial work, and the tests were made at the Royal Berlin Porcelain Manufactory and at the royal testing station. The observations were recorded on a Le Chatelier pyrometer, and also with a Holborn-Kurlbaum optical pyrometer. The results have shown that there is a great difference in the melting points of cones as tested in an electric furnace in comparison to testing a factory kiln. The melting points are much lower in a factory kiln than in an electric kiln. Why the cones act that way Dr. Hoffman has not been able to determine, and more tests will have to be made before this can be determined. In a

discussion which followed this report, the necessity was brought out of changing the temperature list of the melting points to apply to the duration under which the cones were used.—*Sprechsaal*, No. 9, 1910.

Briquettes for Kiln Firing.—In burning lead glazes it is advisable to use wood in slow firing, and briquettes can be used when the temperature of the kiln is above 150 degrees centigrade. The use of briquettes can be continued until about from three to five hours before finishing of the kiln, when wood is again used for the final finish. It is also necessary to burn with greatly oxidizing atmosphere when briquettes are used, as otherwise the glaze will be reduced. In firing with briquettes, grates can be used.—*Keramische Rundschau*, No. 9, 1910.

The Use of Tar on Roofing Tiles.—The application of tar to roofing tiles plays a great part in the building line. If the tiles are properly burnt, the tar layer will stick to the same all right, but should the tiles be burnt rather soft, then the tar will fail to stick. The best tar is pure asphalt tar, which still has all its raw ingredients. Tar is used for making the tiles impervious against snow and water. It is always better to make the tar application on warm tiles, and with hot tar, as then the tar will then have a better chance to be absorbed by the tile.—*Tonwaarenfabrikant*, No. 6, 1910.

Refused Permit for a Brick Kiln Stack.—The district court in Baden has made a decision which is of general interest. A brick manufacturer, who is the owner of an old castle in Baden, which is the pride of that section of the country, had in mind the erection of a 135-foot stack for his manufacturing establishment, and would place this stack close to the castle. The county commissioners refused to grant a permit and the owner carried the matter direct to the district court. The refusal of the commissioner was based on the grounds that the erection of the stack would mar the beauty of the old castle and its surroundings. In a decision of the district court, the commissioners were upheld in their opinion.—*Tonwaarenfabrikant*, No. 5, 1910.

Burning of Glazes in Continuous Kilns.—It is quite possible to burn glazed brick and roofing tiles in a Hoffman continuous kiln. The glazing is done in the same way as usual with glazed clayware. In setting the kiln, care should be taken that the ashes will not come into contact with the glazed ware. Cones should be used in burning such kilns, and the glaze should be of a softer nature and mature at a lower temperature than at which the ware is burned in order to give it a good flowing quality. In burning care should be taken that before firing the kiln should be clear, as otherwise a reducing atmosphere will ensue, which will reduce the lead in the glaze. The glaze can be a raw or fritted glaze, and can either be used on the green clay or on the biscuit body. As to which way is the best and the cheapest, opinions differ, but it is generally conceded that the ware which is first biscuit will give better glazed material than one on which the glaze is applied in green state.—*Deut. Topf. & Z. Z.*, No. 24, 1910.

Berlin Brickmakers Selling Association.—After many years of persistent agitation, the Association of Markish Brickmakers has been able to make a selling agreement among the brickmakers interested in the Berlin building market. The use of brick in the principal city of the Empire is heavy, and it is only natural that the competition was the greatest. Prices have been at times very low, and the profit of operating a brick yard were then not very inviting. The price determined upon is mark 23 for brick delivered by water, and 24 marks for brick delivered by railroad. These prices are for the dealers, while the price direct to consumer is mark 0.75 higher. The Association of Brickmakers has the management of this selling agreement, and in order to meet the expenses, every brickmaker who participates in this arrangement, pays one pfenning per 1,000 brick of his largest production in the year, which is first determined. The arrangement was made to Dec. 31, 1910, and can every year be renewed.—*Deut. Topf. & Z. Z.*, No. 23, 1910.

JAPANESE CERAMICS.

By Hiromichi Shugio.

In this article Mr. Hiromichi Shugio gives a brief historical sketch of Japanese Ceramics in general.

THE ORIGIN, or rather invention, of ceramic art in Japan can be traced back to the prehistoric period, if we are to believe our time-honored traditions, but the first historical reference to pottery is the command of Susanono Mikoto, given to the natives of Idsumi, to brew eight jars of sake. It is said that the pottery was made from these early days in a village of Idsumi which has been called Suyenomura, meaning the village of potters. Another important pottery factory is said to have existed in the village of Omi during the period from 660 to 581 B. C., where some vessels of pottery were made for religious services.

Pottery was made use of in the reign of the Emperor Sujin, 29 B. C., for by his imperial orders figures of human beings made of burned clay were buried with the body of his wife, Hibasihine, in place of her attendants, as had been the custom until that time, on the death of any member of the imperial household.

All the wares made during those early days are very crude

been in Arita. I am inclined to believe that he settled at Kyoto, the center of our art world at that time, or in Seto, already made famous for its pottery by Toshiro. In his productions, all of which were of the blue under the glaze variety, Chinese materials were used which he had brought back with him from Kingtsu-Ching.

The next great step to progress was made after the triumphant return of the Korean expedition in 1598, when many skilled Korean potters were brought over to Japan, and the kilns of Hizen, Higo, Chikuzen, Satsuma and Nagato were either established or improved upon by them.

Risampeï, one of the many Korean potters brought over by General Prince Nabeshima, opened a kiln at the foot of Kanatate Mountain, a few miles north of the capital town of Saga. This kiln was abandoned, as the clay proved unsuitable, and it was removed to Fujinokochi, and afterwards to Arita, as superior materials were discovered in Idsumiyama of Arita district.

The first artist who decorated porcelain with enameled paintings over the glaze was Sakaida Kakiyemon, of Nangawara, near Arita. He acquired the secret of enamel painting from Tokuzayemon, of Imari, who had obtained it from the captain of a Chinese merchant ship in Nagasaki in 1640. In 1646 he went to Nagasaki, where he sold some of his porcelains to a Chinese trader, and also to Ichibei, a buyer for the



Tea and Water Jars Designed by Ninsei, the Most Famous of All Japanese Ceramists.

and coarse, being nothing more than mere unglazed and burnt clay. The introduction of potters' wheels, attributed to Giyoki, a priest of Idsumi, in 724 A. D., may be considered the real dawn of ceramic art in Japan.

The first glazed pottery was made during the reign of Emperor Nara (806 A. D.), but no artistic glazed pottery was made until 1223, when Kato Shiroyemon, generally called "Toshiro," who studied the ceramic art in China, turned out his artistic wares at Seto, in the Province of Owari. On his return from China he experimented in various places in the neighborhood of Kyoto, and also in the Province of Owari, but, finding Seto more suitable for his purposes, he settled there and opened a kiln. From this time Seto became a center for ceramic art, and to all ceramic production in Japan the general term "Setomono" (things of Seto) was applied, a usage somewhat similar to that of the word "china-ware" in England.

Porcelain was first made in Japan by Gorodayu Shonsui, a native of Ise, who also studied the secret of porcelain making in China and returned to Japan in 1513, having attained his object after five years of study. It is generally supposed that after his return he settled in Hizen, but this cannot be verified, and no record of his connection with any of the pottery kilns in existence at that time in that province can be found, nor is there any record, either official or private, of his having

Prince of Kaga. His wares were afterwards bought by Dutch and Chinese traders at Nagasaki for export. Kakiyemon has, therefore, the honor of being not only the first decorator of Japanese porcelain, but also the first to sell Japanese porcelain to foreigners. He was also honored by Prince Nabeshima, who appointed him as his special porcelain maker, and thereafter his fame spread throughout Japan. He was assisted in his work by Gosu Gombei, another noted potter of that period.

Ninsei, the great Kyoto potter, assisted by the generosity of Wankiu, a rich merchant of Osaka, succeeded during the Meireki period (1655-57) in similar work, and produced those beautiful pieces which are now so much sought after and valued as Ninsei ware.

Another important step in the progress of the art was the discovery of the use of saggers in baking porcelains by Tsuji Kizayemon of Arita, a noted potter of that district during the Kwambun period (1661-72). The discovery was made through a fortunate accident, which is thus described:

On a certain occasion he opened his kiln after baking, and found that one piece had fallen inside a larger one placed on a lower stand in the oven, and on breaking the large piece he discovered, to his great surprise, that the small piece was in a more perfect state of finish than any of the others. This at

once suggested to him the advantage of using the saggars in baking superior pieces, and the porcelains baked by this method are called "Gokushinyaki." His ware baked in this manner attracted great attention, and he was appointed as one of the honored potters to the imperial court at Kyoto, through the good offices of Prince Dato of Sendai.

Of other improvements in our ceramic art, it is necessary to mention the models in making pottery, which were first introduced by the celebrated potter Mokubei of Kyoto about a hundred years ago, and to the egg-shell porcelains first made in Arita by Hisadomi Yojibei, better known by the name of Zoshuntei Sampo.

Hirado and Nabeshima wares deserve the admiration of all lovers of ceramic art. The old Hirado porcelains are masterpieces, always correct in form, whether a flower vase, a water jar, a teapot or a sake bottle, and its paste is more carefully manipulated and finer in texture than in any other Japanese porcelains, with the exception of Nabeshima ware.

The Hirado blue is softer and more refined in its tone than that of the Chinese or Nabeshima; its glaze is uniform, lustrous and perfectly white. Lord Matsura, Prince of Hirado, encouraged porcelain productions during the Horeki period (1751-62) by having the kilns rebuilt and by the careful selection of only the best artisans. The entire output during this



Bikkodo Satsuma Incense Burner.

period was reserved for the exclusive use of the Prince. The best specimens of Hirado ware are those produced from the Horeki period down to the middle of the last century.

The Nabeshima ware, or Okawachi yaki, is the name given to the porcelain made in the private kiln established by Lord Nabeshima, Prince of Hizen, in 1716, at Okawachi. This ware was made of the same clay as that of Imari, the name by which Arita ware is known, but greater care was taken in its manipulation, and it is much finer and softer in quality. Nabeshima ware is undoubtedly the best enameled porcelain ever produced in Japan, and its celadon compares favorably with that of the Chinese. The paste of Nabeshima ware is slightly harder than that of Hirado, and its glaze is slightly more bluish. The distinguishing feature of its enameled ware is a peculiar red coloring, which is more of an orange red, while its decorations are generally very simple and refined. The comb mark under the edge of the saucers, plates and bowls is the mark used by this kiln, and it is known as the "kushide."

The Imari ware, which is often called Hizen or Arita ware, is better known abroad than any other Japanese porcelain, as it was exported to Europe by the Dutch traders as early as 1690, where it was highly appreciated and known as "Old

Japan." It is, in fact, the first porcelain produced in Japan, and is the source from which all other Japanese porcelains originated.

Kutani or Kaga ware is either the porcelain or semi-porcelain produced at the Kutani kilns in the province of Kaga. The first kiln is said to have been established during the Kwanyei period (1624-42) by Tamura Gonzayemon, under instructions from Lord Mayeda, the chief of the castle of Dai-shoji, in Kaga. The porcelain made after the Imari method was first introduced here by Goto Saijiro, the most famous of all Kutani potters, upon his return from Hizen, about 1659, where he had been sent by Lord Mayeda to learn this secret



Teapot by Mokubei.

process of porcelain making and enamel painting. About this time the celebrated painter, Kusumi Morikage, came to Kutani, and the pieces decorated by him are greatly prized for the beauty of their painting and coloring.

Kutani ware decorated in the characteristic red and gold is comparatively modern, first specimens of this style having



Imari Sake Decanter.

been made in 1814 by Hachiroyemon, a potter who worked at the new factory in Yamashimomura, a village in the neighborhood of Kutani. The Kutani porcelain is coarser than that of Imari, and its glaze is comparatively opaque and heavy in appearance.

Satsuma ware is perhaps better known in Europe and America than any other Japanese faience. The Satsuma ware most generally known is a fine crackled, rich, creamy faience, decorated elaborately in gold and rich enamel colors, though there are many other varieties.

The earliest examples of Satsuma ware are those of the fifteenth century, and are of a very coarse clay of an indifferent glaze, without any particular artistic merit. The famous shell glaze Satsuma so much admired by foreign collectors

was first made at the kiln in Nayeshirogawa, when Bokukoyo, a Korean potter, discovered the fine white clay so well adapted for this purpose. The Nishikide style of decoration was introduced during the Kansei period (1789-1800), under the patronage of Prince Shimadzu Narinobu, the lord of the three provinces, and attained a great reputation as being superior to any of the decorated faience made up to that time in Japan.

The decorated Satsuma is distinguished by its delicate outline, its rich dull red, green and blue enamels, with their gold tracings. The best specimens of decorated Satsuma are those made between 1789 and 1850, and the term "old Satsuma," when applied to decorated Satsuma, must be understood to refer to those produced in that period.

Sunkoroku Satsuma is a variety made after the style of a foreign ware having that name, and it differs from the well-known Satsuma, as it is usually made of hard gray glaze and covered with archaic designs painted in black or brown under the glaze. Mishima Satsuma is another variety, which is decorated with very minute Japanese calendar designs, and occasionally other decorations. Seto Kusuri Satsuma is the ware having the Seto glaze, and is usually made from a hard, reddish gray clay. Amekusuri Satsuma is a variety having an

Korean potter, who founded the Odo kiln. He came to Kyoto in the beginning of the seventeenth century and continued his studies under Genjiro. He built a kiln first at Sannenzaka, in Kiyomidsu, where his earlier pieces were produced with the clay taken from Mizoro. These pieces are therefore sometimes called Misoro ware. The pieces he made with the clay from Omuro hill, which is also called Ouchiyama, are known as the Omuro ware, and they have usually the stamp Ninsei engraved within a border, which stands for the character Uvhi, and which is vulgarly called Makujurushi, as it resembles a Japanese tent or maku. He is said to have worked at the kilns of Iwakura, Seikanji, Otowa, Narutaki, Awataguchi, Komatsudani and Takagamine, in all of these places imparting the secrets of his arts to his fellow potters.

Of this potter it may be justly said that he was the exponent of the most aesthetic taste of ceramics in Japan, and his works are far superior to those of any other decorated faience, either before or since his time. No ceramic artist had so many imitators as Ninsei, but the real Ninsei ware can be



Egg Shell Satsuma.

amber-colored glaze, and if often found with incised decorations. Bekkode Satsuma is usually a tortoise-shell like glaze, while the most famous variety is the Torafu, or the tiger-like glaze. The inlaid Satsuma is another variety, generally made from a grayish white clay, and decorated with some design inlaid under the glaze in white or gray clay.

Besides the above varieties, there are the shark-skin glaze, the blue and white, the mirror black, and the purple Satsuma. Satsuma paste is much harder and also finer in its texture than that of the Kyoto ware; the glaze is also softer, and the crackles much smaller than that of Kyoto ware or any other Japanese faience.

Kyoto for many centuries was the art center of Japan, and has been celebrated for its art products. Among the famous potters of Kyoto may be mentioned Shoi, Manyemon, Genjiro, Sohaku, Moyemon, Shimnei, Kichibei, Domi, Koson, Chausuya, Chasomeya, Ninsei, Ameya, Koyetsu, Kensan, Yeisen, Mokubei, Shubei, Rokubei, Yeisaku, Dohachi, Kitei, Yozo, Hozan, Kin-kozan, Taizan, Tanzan, Torasuke, all of whom are distinguished, and before all Ninsei deserves special mention.

Ninsei, whose full name was Nonomura Seiyemon, was a native of Tamba, and was educated by his uncle at Odo in Tosa, where he studied ceramics under Butsuami, the famous



Decorated Egg Shell Satsuma.



Hirado Ornament.

distinguished by the stamp, the peculiar crackle, and the technical skill displayed.—Japanese Magazine.

INTERNATIONAL CONGRESS TO BE HELD IN BRUSSELS THIS SUMMER TO DISCUSS GOOD ROADS.

Invitations have been sent out to the governors of every state and territory in the United States and the various Canadian provinces by the American Road Builders' Association, the representative in this country of the International Road Association formed in Paris in 1908, to appoint delegates to the Second International Congress of Road Builders to be held in Brussels, Belgium, from July 31 to August 7, this year. Each governor is requested to appoint two delegates. The first congress was called by the French government in 1908 and last year the gathering took place in this country, the meetings, which were largely attended, being held in Columbus, Ohio.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



HERE HAS BEEN a noticeable change in the building situation here in Chicago since this time last month. Then everything was booming, and there was every indication that the wonderful building records of 1909 were going to be shattered during the current twelve-month. For the past three or four weeks, however, while construction business has been far from a standstill, there has been by no means the former activity. There was a decided letting up in interest on the part of those who were known to be planning to invest their money in the substantial and generally satisfactory way that modern building offers, and those who were planning to increase the size of their business and industrial establishments in recognition of growth and anticipation of still greater increases in prosperity.

A somewhat general unsettled condition in the labor world, now fortunately on the mend, has been in part at least responsible for this attitude. The really big affair of this nature was the trouble with the structural iron workers. A strike was on for several days pending an adjustment of a difference over wages. The men have now returned to work, however, and construction on a large number of buildings in the downtown district which had been held up has been resumed under a new agreement, by which the iron workers will receive an increase of 2½ cents an hour for the first year and an additional cent an hour during the year following. The new contract which has been signed will not expire until May 1, 1912, and there is prospect for a goodly period of peace in that important quarter, therefore. Under the present agreement the men will receive 65 cents an hour this year and 66 cents an hour next year, the old scale being 62½ cents an hour. With this big black cloud swept from the skies, it is hoped that the few other clouds that hovered round may soon disappear, before the season is much older. Such troubles particularly affecting the backbone of the big modern buildings always have a tendency to make investors exceedingly reticent about tying up money when there is the possibility of a long delay before they can begin to realize upon it.

But there has been another deterring force at work, more general in nature, and this, in the minds of the shrewd, has been the threatened increase in railroad freight rates, together with the merry row that at once began to brew over that prospect, and the "big stick" attitude which the national administration forthwith adopted. This trouble, too, temporarily, at least, has been backed off the boards through the force of the compromise which President Taft, that inveterate peacemaker, was able to bring about until such time as the new act relating to interstate commerce shall take effect. Nothing is more disturbing to business generally than pronounced friction between the shippers and the railroads, but in addition it is currently reported that the effort of the roads to increase their rates was regarded to some extent as tending to confirm certain forebodings quietly voiced from time to time for several months past by pessimistic gentlemen.

All this is, on the surface, a long way from building, but in reality it is most closely related, and the relation goes straight on through to building brick, fireproofing, terra cotta, tile, etc., in which the readers of THE CLAY-WORKER are most vitally interested.

Of more local interest, it may be noted that a recent big move in the financial world has sent a-glimmering the plans for the erection of one and possibly plans for two new buildings of magnificent size. The feature of the month in the financial world is the merging of the Continental National and the Commercial National Banks. The home of the combined banks will be in the fine structure at the northeast corner of Adams and Clark streets, which now houses the Commercial

National, and the new structure which had been expected to rise on the site of the old Continental National Bank building, at 218 LaSalle street, and reach over onto the site of the present Rand-McNally building, has been abandoned, it is understood. The Continental National abandoned its LaSalle street quarters several months ago when it merged with the American Trust and Savings Bank and removed to that institution's building at Monroe and Clark streets, but until the new merger appeared on the horizon it had been expected to put up an adequate structure at LaSalle and Adams streets.

This in turn moved the Rand-McNally people to activity, with the wrecking of their building in prospect, and pretty definite plans have been discussed for a big building for this firm to be erected at Harrison and Clark streets, to house their tremendous plant. Whether these plans also will be dropped remains to be seen.

In spite of all these unfavorable circumstances and conditions, building affairs are in fairly good shape, apparently. More buildings were begun during May, 1910, than during May, 1909, although the cost for May of this year does not reach the total of last year by a trifle over \$5,000,000.

The record for the month of June, however, probably will make this up, if the permit for construction of the new Morrison Hotel, at the southeast corner of Clark and Madison streets, is taken out in that time. The cost of this building is estimated at \$5,000,000, and it will be one of the most notable structures of the kind in the city. It is planned to run it up to a height of thirty stories, which would make the tallest skyscraper of Chicago, but the building code will have to be amended before this can be done, as the present height limit is 260 feet, and twenty-two stories are about all that can be squeezed in within this limit. The plans prepared by Marshall & Fox, architects, provide for 400 rooms, each with bath. White terra cotta, with white granite, will constitute the decorative features of the facade. The building will have a mansard roof of purple tiling.

In addition Rothschild & Co. are arranging to put up a big new store, ten stories in height, on the site of their present structure, and extending through the block to Wabash avenue. Plans have been practically completed by Holabird & Roche, architects.

LaVerne W. Noyes will construct a \$500,000 plant for the manufacture of automobiles within the near future, the new plant to be situated at Twentieth street and Michigan avenue, and there are many other factories, commercial buildings, large and small, ornamental apartment dwellings running into big money, and small but highly ornamental theaters and auditoriums, ranging from \$100,000 upward in price, in contemplation for erection in various parts of the city. All this, to say nothing of the hundreds of two-story and three-story apartments and single dwellings which are being started every day.

A ride through any part of town tells one that it is easily the "brick age." Chicago is even seeing more and more light in the matter of brick pavements, and the present Board of Local Improvements is using this serviceable and satisfactory paving material more and more, not only for fine streets and traffic streets, but for alleys as well. It is only unfortunate that the great amount of paving being put down in the "loop" district just now is not to be of this substantial material. The creosoted block craze is on for downtown work just now, however, and the result is that crossing a street is like wading through a shallow lake of tar. Only the other day the daily papers recorded the plight of a young woman who lost her shoe in the tenacious mixture which is spread copiously over the blocks after they have been laid. One wonders sometimes whether this unpleasant mess is not laid down in such thickness to cover up something underneath for as long a time as possible, and many Chicagoans are waiting to see what happens when the "goo" finally wears off. SCRIP.

A railway company in its original conception was unquestionably a commercial proposition, but sometimes it looks like some of them have wandered quite a long way from the home of their original conception.

THE COMBUSTION OF FUEL AND THE APPLICATION OF HEAT IN KILNS.*

BY A. V. BLEININGER, PITTSBURG, PA.†

THE OBJECT of burning clay ware naturally consists in heating it up to the required temperature at a rate as rapid as conditions will permit and with the consumption of the minimum amount of fuel. The subject might be considered under the following general headings:

1. Production of heat.
2. Transmission of heat.
3. Distribution of heat losses.
4. Burning process.

1. The heat as produced in our kilns is that due to the combustion of coal, viz., the union between the carbon and hydrogen of the fuel with the oxygen of the air. Thus we charge the fuel into the furnace, cause it to burn, and carry the products of combustion through the brick or other ware into the flues and out into the stack.

The usefulness of a fuel for our purposes may be considered from two standpoints: (a) that of the heating value; (b) that of the maximum temperature it may be possible to produce with it.

In order to make this clear, let us consider a concrete case, using as an illustration an Illinois coal of average quality. On making a chemical analysis of such a coal, we would find it to consist of the following constituents:

Carbon	60.15%
Hydrogen	4.15%
Oxygen	9.37%
Sulphur	4.34%
Moisture	7.90%
Ash	14.09%

One pound of this coal, on burning in air, gives off the following weights of gases:

2.09 pounds of carbonic acid gas.
0.45 pounds of steam.
0.06 pounds of sulphur dioxide.
5.90 pounds of nitrogen.

If, then, the coal has a heating value of 11,160 British thermal units per pound, it is evident that this heat must be imparted to the gases resulting on combustion. The temperature of the gases thus flowing from the furnace to the kiln is necessarily equal to the heating value divided by the thermal capacity of the gases. Given the above weights of gases, the maximum temperature will be produced, and any excess of air beyond that necessary to complete combustion is bound to lower this temperature. Any air introduced in excess of the required amount will at once reduce the temperature, just as is done by the steam from wet coal.

Referring to the heating value of coal, we must keep in mind that both ash and water are inert constituents which not only produce no heat but give rise to heat losses. It is important that we should pay more attention to this matter than we have done before. It is not a difficult matter for anybody to determine for himself the ash content of the coal he has bought by weighing an average sample of the coal, say one pound, burning the coal in the most convenient place, and weighing the residual ash. Where large quantities of coal are used, as on many of our clay plants, it would pay well to buy coal on the basis of its heating value, just as is now being done by corporations. This is only common sense, for it is evident that all we need from coal is heat, and to pay good money for ashes and water and the freight to carry them is an absurdity. Determinations of the heating value of coal

*Read before the Wisconsin Clay Manufacturers' Association, February 25, 1910.

†By permission of the Director of the United States Geological Survey.

can now be contracted for with specialists along these lines at reasonable figures, and larger plants might even do this work for themselves economically.

Let us now study what takes place when we put a charge of coal into a kiln furnace. As we know, a steady current of air is drawn in through the grate bars and above the fire. The hot furnace at once causes the fresh coal to ignite, and the latter burns by combining with the oxygen of the air. In part the carbon burns directly to carbonic acid gas and in part the volatile constituents of the coal are first distilled off to form a combustible gas which burns on the way to the kiln proper. The more of this volatile matter a coal contains, the more of the gas is produced, and if the coal is charged in larger amounts it is evident that quite a volume of the gas is set free, which, owing to the rapid flow towards the stack, does not get time to burn up in the furnace, but does so in the kiln, and frequently even as far as the flues. This streak of burning gases we call flame. Often, indeed, the combustible gases are not given an opportunity to burn completely at all, especially if they get chilled by striking the colder bricks. This results in unburnt carbon being carried off, which we observe as smoke.

One pound of the coal cited above would require for theoretical combustion about 7.66 pounds of air. Since, however, it is impossible to control the admission of air with any degree of accuracy, it is evident that the amount of air is either less or more, usually the latter, so that we admit 10 or more pounds of air per pound of coal. During water smoking and

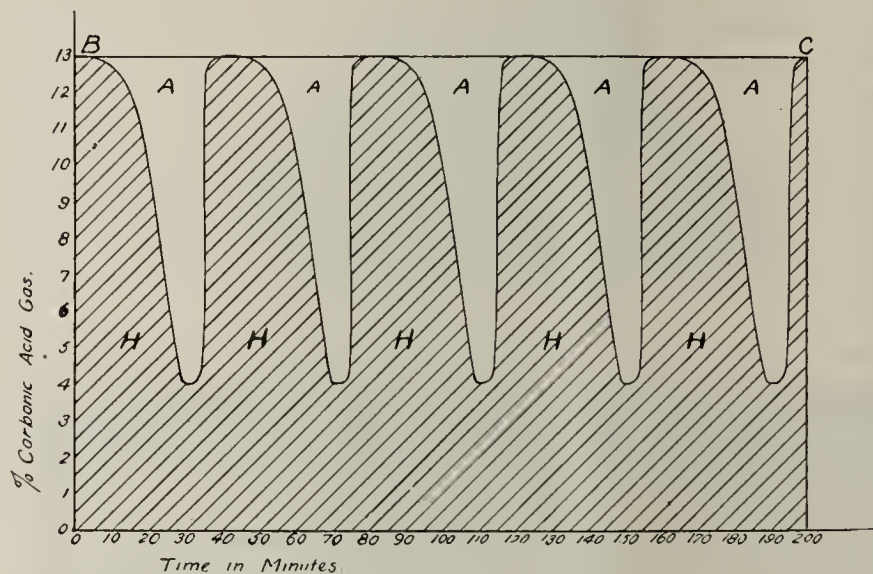


Fig. 1.

the earlier stages we admit much more than this. Soon after the coal has been fed the combustion is most violent, and we have given off through the stack about 11 pounds of carbonic acid gas, steam, sulphur dioxide, nitrogen and excess air per pound of coal. These 11 pounds of gas carry the available heat of the coal, minus such heat losses as occur in the furnace. Anything we can do, therefore, to cut down the amount of these gases would raise their temperature; if, thus, we were to cut down the weight to 10 pounds by letting in less air, we should have a temperature correspondingly higher. From this it follows that the excess air should be kept down as low as possible where higher temperatures are required. As the coal burns down the amount of carbon gets less, and hence the heat evolved per minute also gets less. This is indicated by the decreasing amount of carbon dioxide given off, which becomes smaller and smaller, while the content of excess air increases. After a while the coal has been burnt down, air is rushing in, cooling down the furnace, and it is time to fire up again.

If, for example, the kiln is fired every half hour, we have first a large amount of heat given up after firing, which gets less and less until the next charge is introduced. As a result we have a sort of a hot wave of gases passing into the kiln, which recedes and is followed by a current of colder air, driving the heat down into the kiln ahead of it.

The percentage of carbonic acid gas in the combustion products is a faithful indicator of this condition, as the more of this gas is set free the more heat must be given off by the coal, as we cannot have heat without burning carbon. This is

illustrated in the diagram of Fig. 1. The curve begins right after firing, when the carbonic acid gas is high and also the heat given off. As the coal burns down the carbonic acid gets less and less, and it is replaced by the air which rushes in. In the diagram the shaded areas, H, represent the heat produced, and the areas A the cooling effect due to the admission of air. On firing less frequently the cooling would become more marked, and hence the heat losses greater, while more frequent firing would reduce the loss. If it were possible to charge the fuel uniformly all of the time, the cooling effect would be removed entirely. Thus, if by steady firing the carbonic acid gas content could be kept constant at 13%, we would have the condition represented by the line B C—i. e., the waves of hot gases would be replaced by a steady stream of heated combustion products. This would bring about ideal conditions which exist in gas fired kilns.

Summarizing the work of the furnace, we find that the largest part of the combustion takes place here. Most of the air is supplied at this place, and is introduced into the kiln by the suction of the stack, or in the case of the up-draft kiln by the natural draft of the kiln itself. The draft caused by the stack is due to the lower weight of the heated gases as compared with the weight of the same volume of air at the atmospheric temperature. This difference in pressure between the inside of the stack and the atmosphere causes the latter to push air through the grate bars of the furnace in the effort to bring about equilibrium. The stack draft thus, up to a certain point, is proportional to the temperature of the stack and the square root of its height.

The total pull or draft of a stack may be calculated from very simple reasoning. Thus, for a square stack about 30 feet high and 3 feet square on the inside, in which the gases leave at an average temperature of 920 degrees F. when the atmospheric temperature is 32 degrees F., the pull is equal to the difference in weight between the air on the inside and that of the same volume on the outside. This stack would contain 270 cubic feet of air at 920 degrees F., which would weigh about 14.2 pounds. The same volume of cold air at 32 degrees F. weighs 28.4 pounds. Therefore the pull of the stack is equal to $28.4 - 14.2 = 14.2$ pounds, or not quite 0.2 of an ounce per square inch. Expressed in inches of water gauge, it would correspond to a head of one-quarter of an inch of water, or in terms of cold air at 32 degrees F., to a head of about 16 feet. Allowing 6 feet for the friction head of the stack due to the flow of the gases through it, the pull available for drawing the gases through the kiln would be roughly 10 feet of air head. This corresponds exactly to the same term employed in speaking of a water fall which may be 10 feet high, only that in this case we talk of 10 feet of air head. The velocity corresponding to this head could be calculated by multiplying 10 by the so-called gravity constant, 64.3, and taking the square root of the product. This would be equal to about 25 feet per second. In other words, under this pull the cold air could be drawn through a hole of the same cross section as the stack at the rate of 25 feet per second. The pull of the stack is expended in drawing the cold air into the furnace through and over the coal and the hot combustion gases through the bricks or other ware in the kiln. It is plain that the tighter the ware is set the greater must be the available draft or kiln "head," and if the setting is too tight it is evident that it will not be possible to maintain combustion at a rate sufficient to reach the desired temperature throughout the kiln.

The velocity of the gases in the different parts of the kiln necessarily varies with the temperature and the cross section. Thus, the cold air will enter through the ash pit doors at a moderate velocity, while the hot gases escape from the furnace through the ports and up the bags at a high velocity, which is at once checked as they reach the large kiln space. On leaving the kiln the gases again assume a higher velocity, which decreases along the flue and the stack as cooling takes place.

In order to measure the available pull of the stack, it is necessary to attach a draft gauge to the kiln, preferably through the crown (in a down-draft kiln).

The work of the stack thus consists in pulling the necessary air for combustion through the furnaces and removing the combustion gases.

2. Transmission of Heat.—The heat generated in the furnaces must now be used and imparted to the ware. This is

accomplished by the direct contact of the hot gases with the bricks, by convection and conduction, and also by the heat radiated from the crown space upon the bricks, and also from brick to brick, from the hotter to the cooler. The heat imparted to the surface of the bricks is then carried to their interior by conduction. These three modes of heat transmission must be clearly distinguished. In convection the particles of hot gas actually carry the heat to the bricks, so that one pound of hot gas at a certain temperature may be said to lose heat proportionally to the difference between its original temperature on coming in contact with the ware and its temperature on leaving the kiln. The amount of heat given to each brick by any weight of gas depends upon the difference in temperature between the gas and the brick. The hotter the gas and the cooler the brick the more heat will be transferred to the latter at any moment, and vice versa. Similarly, it is apparent that the greater the velocity of the hot gases in passing through the kiln the more quickly must the bricks be heated, though each pound of gas would lose less heat in passing through a certain height of bricks rapidly than it would with a slower movement.

In transmitting heat by radiation from a hot body to a cooler one, we need no carrier like air, since in this case the heat waves are sent through space even though there are no air currents, just as the electrical waves used in wireless telegraphy are passed through the atmosphere.

To illustrate, if we stand before a hot metal screen, we receive a good share of the heat which strikes us direct, by radiation. All of the sun's heat we obtain by radiation. The medium through which radiated heat is passed need not be heated itself. The amount of heat transferred from a hot body to a cooler one by radiation is proportional to the fourth power of the temperature difference. To illustrate: Assuming that two hot bodies of the same kind of material and of the same shape, one of which is at 1000 degrees F. and the other at 2000 degrees F., radiate heat to a cooler body at 100 degrees F., it will be found that the hotter body will radiate about eight times as much heat as the one at 1000 degrees F.

It is evident, therefore, that a large amount of heat is thus radiated upon the top bricks from the body of hot gases beneath the crown, and that hence the temperature in this part of the kiln is far in excess over that prevailing at any other place. For this reason a flat crown will have less radiating surface than one with a shorter radius, and hence is to be preferred from the standpoint of heat distribution.

Heat transmission by conduction consists in transferring heat direct from particle to particle, from the outside to the interior of the bricks. It is obvious that the time required to heat up the inside of the ware depends upon the thickness of the latter as well as its density.

From the practical standpoint the question resolves itself into how to convey the heat produced by the fuel to the bricks in the best and most efficient manner, so that the top courses may not overburn and the lower ones obtain their share. This necessarily depends to some extent upon the fuel used, as the case is different where coal of the anthracite type is used from that where the fuel is bituminous coal. Since, however, the latter class of fuel is used most generally, our attention may be confined to it. For uniform heat distribution it is necessary to avoid a limited zone of high temperature, but to maintain a more extensive one at a lower temperature, so that throughout the cross section of the kiln a large volume of heated gases flows uniformly down between the openings among the ware.

This may be accomplished:

- (a) By partial combustion in the furnace.
- (b) By the employment of the proper volume of heat-carrying gases.

The first principle consists simply in firing with a comparatively heavy bed of coal, so that not enough air is admitted through the grate bars to perfect anything near complete combustion in the furnace.

It is evident, therefore, that in this case air must be admitted above the fire, so that combustion may be completed in the kiln itself. This condition is found to prevail more or less in any furnace and any method of firing immediately after feeding the fuel, but it can be developed to a system. The idea is evidently to avoid overheating the top of the kiln by extending combustion down into the ware instead of confining

it to the furnace and the bags. This practice is illustrated by the way some inclined grates or grateless furnaces are operated. In these cases the fuel is thrown upon the hot fire in large quantities, resulting in the production of combustible gases, which are burnt by the admission of secondary air into the bags, in the kiln and throughout the ware. But it is evident that as the fuel burns down the combustible gases decrease in amount, and that hence towards the time of the next baiting combustion is restricted to the furnace. The logical development of this system is the so-called semi-gas firing method, where the furnaces are really small gas producers, and where a sufficiently large air flue leading to the bags must be provided for the introduction of the necessary air for combustion, which then takes place entirely within the kiln all of the time.

This general idea of firing, however, cannot be carried out consistently without resorting to the full-fledged gas producer idea mentioned last. Under the usual kiln conditions it is difficult to control, and besides, where the question of color is an important one, may be detrimental to the production of clean shades.

Some other modifications of carrying the combustion process into the kiln have been proposed, such as the introduction of steam beneath the grates, upon which as hot a fire as possible is maintained. In this case the steam is decomposed into oxygen and hydrogen, a process which requires heat, and hence cools the fires. These two gases then pass into the kiln, where they recombine and give off the same amount of heat which they absorbed in the furnace. The steam thus keeps the furnaces cooler, while it transfers an equivalent amount of heat to the ware. At the same time, however, it involves the extra expenditure of heat in producing the steam, which is not justified unless the waste gases going to the stack are utilized for this purpose. Although there is no doubt but that the use of steam in this connection would be useful, it certainly would complicate the burning, and call for greater skill and closer adjustment of condition than is now being practiced. In certain cases, however, as, for instance, where crude oil is used as fuel, the use of steam becomes a valuable aid in keeping down the intense local temperature produced by the oil burner.

The second principle enunciated consists in keeping the fires thin enough so that the combustion gases and the excess air admitted carry all of the heat generated into the kiln. Combustion is thus practically confined to the furnace, and the gases acting as heat carriers are virtually carbonic acid gas, nitrogen, air and the steam produced from the coal. The one danger in this method of burning is overheating of the top, due to intense firing. This difficulty, however, may be overcome by feeding the furnaces more frequently and using correspondingly smaller charges of coal, together with intelligent operation of the damper. The aim should be to introduce enough excess air at all times, by keeping the fires clean, to prevent overheating of the top, and yet to avoid introducing too much air by regulating the damper and hence the velocity of the outflowing gases. In other words, the conditions prevailing in a mechanical stoker or in gas firing should be approached as closely as possible, doing away with the spasmodic efforts to push the heat down into the kiln which we see practiced. It is frequently observed that a high heat is produced in the furnaces and on the top of the kiln, which is then forced towards the bottom by admitting a large amount of cold air into the furnace or direct into the bags. This practice is to be condemned, as its effect is bound to be transient, for it stands to reason that the wave of hot gases will be succeeded by one much cooler, thus neutralizing the desired effect considerably.

Summarizing, then, the transfer of heat from the furnace to the kiln, we may say: Keep the fires clean and thin, fire as frequently as possible in small charges, and regulate the damper so as to avoid bringing in too much excess air.

How are we to know when we have excess air, and how much of it is passing through the kiln? To this we may reply that close watching of the progress of the burning, either by the use of the settle or by means of a pyrometer, will soon tell the intelligent burner whether he is getting the maximum heat effect. To the unintelligent burner it will always be a matter of guessing. If you want to be absolutely sure, you

can easily prove the case by the use of the pyrometer and a carbonic acid gas burette, plus the simple knowledge how to interpret the results. There is, after all, no mystery about the process if we want to take the trouble to learn a few simple principles.

(To be continued.)

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



MEN WHO HAVE PLANS ready for buildings of various kinds are authority for the statement that there is a tightening in the money market to such an extent that Eastern loan concerns are demanding more security for their loans. Many are securing their money from home sources, and are going ahead with their buildings, and others are digging up the additional amount to carry on their building operations and are taking the smaller loan on the property. At any rate, the report of the superintendent of building for the month of June shows that permits issued for the month had a value of \$1,418,385, which was \$112,060 more than for the same month of last year. This goes to show that work is forging right along, and the fact that all labor is reported well employed would indicate that if building operations were larger there might be a shortage in this direction.

It is stated that work is to begin on several large office buildings within the next two months, and that work on the union depot will be given more impetus by that time, and as there is a great amount of other work in sight, it seems evident that this is going to be a big building year here.

Brick prices are steady, and possibly a shade lower than they were a month ago; they are generally delivered on the job now for \$8 per thousand for the common brick, and there seems to be little trouble in making the delivery. Teams are more plentiful than formerly, and as the weather has remained cool there has been good service furnished by the teams.

Paving brick manufacturers report that there is a very strong demand for pavers at this time, both in Kansas and to the south. Several of the larger Kansas cities have a good deal of paving ready to lay, and a good many of the smaller cities are ready to pave this year. In the South the cities are still paving, although they have been heavy pavers in the past. They see the benefits as they go along, and keep up the good work. Every street paved with good brick is an advertisement for the material, and other streets want the same when they get ready to pave.

Here in the city there is very little accumulation of brick at the plants, but there seems to be a slight inclination that way. The demand has held up good, and the yards are still well cleaned. Manufacturers are rather more inclined to let the brick pile up in case the demand is not strong enough to take them out as fast as made than to shut off production in any way, and as a result there is nearly sure to be as many brick made here this year as can possibly be made with plants at their present capacity.

News from Kansas indicates that the plants of that State are beginning to accumulate a little stock, and that there is just a trifle easier feeling; at the same time prices are still held firm, manufacturers preferring to allow accumulations to reducing the price to clean up thoroughly.

The Pittsburg Brick Co. is reporting the plant turning out more good pavers at the present time than ever before. The management also states that there is plenty of demand.

The Kansas City Hydraulic Pressed Brick Co. reports that it is running full time with all machinery, and is keeping all teams busy making delivery.

The Independence Brick Co. has been doing some good work on its plant the past month, and expects to begin manufacturing brick within a few days.

K. A. W.



THE AGRICULTURAL MULTIPLICATION TABLE.

"How many acres of land have you?"

"One hundred."

"Then you have bought some more; you had only twenty."

"No, I haven't bought any; I haven't had any given to me, I haven't rented any. Still, I claim that I have one hundred acres."

"How do you make it out?"

"Just this way: I bought twenty acres and thoroughly underdrained it and plowed it deep, utilizing every foot of ground twice the depth of former cultivation, making on an average one acre equal to two. That gave me forty acres."

"Just so."

"I then fertilized the land so that one acre produced as much as three did before. That made me twenty acres more, making the total sixty acres."

"I see."

"Then I practiced persistent cultivation, which, I can prove, will double the yield of an acre. Twenty acres more, you see, which makes me eighty."

"Yes, and now for the other twenty."

"The other twenty I got by only using the best of seed and by putting brains and system into my work. And to prove that my farm contains one hundred acres, I am willing to compare results with the average hundred acres any where. Things equal to the same thing are equal to each other, you know."

THE FINANCIAL SIDE OF DRAINAGE.

In almost every undertaking the question rises up before us, "Will it pay?" And when fully established, "Does it pay?"

There is, however, in sections of country where tile drainage has been practiced for years, no longer any question as to whether it "will pay" or "does pay." As to what per cent or rate of interest it pays is not so definitely settled.

Years ago a few tile manufacturers offered to furnish tile to drain land under their direction for the extra profits accruing to the owner for two or three years. But land owners soon found that the extra per cent of increased production made a large per cent to the tile manufacturer. One manufacturer in particular, who figured closely, found that ordinarily the money invested in drain tile let out two years brought extra profits from the crops produced amounting to 65 per cent on the money invested in tile. If there is any other branch of agriculture that will return as high a rate of interest on the investment with as much certainty, there are a number of persons that would be glad to learn about it.

Another one says he has a neighbor who owned a level tract of land that produced but little on account of the wet and dry weather. After observing what others were doing in the way of draining their land, determined to try it on this level wet land. Having drawn the tile during the winter he undertook the digging of the ditches and laying of the tile drains in the spring. When the work of drainage was done, he found that the aggregate cost averaged \$14 per acre. The first crop grown was very satisfactory, but the year following the crop grown was sold for \$23 per acre. Similar cases of profits could be enumerated by the hundreds, but this will answer the one question, "Does drainage pay?" Besides, no one has yet said that it did not pay, though many have done

the work of drainage poorly and yet it pays, and would pay better if well done.

IMPERVIOUS CLAYS.

The statement is frequently made that it is useless to undertake to drain clays that are impervious, meaning that the water will not pass through the clay to the drain, and the excuse often made for shallow drains is that the clay is impervious to water. From a wide range of observation and experience in draining land, we conclude that men are often mistaken as to the imperviousness of their clay. One common sense question asked and answered understandingly will determine the imperviousness of clay, which is, "Will the clay get wet?" If so, the clay is not impervious. If water will get into clay it will get out, or if clay will get wet at all, it will dry out.

A clay may be so tenacious and close as to admit the water slowly at first, and part with it slowly, but tile or underdrainage will cause such clays to become open and porous.

A friend of the writer undertook to drain a large pond on a summit level. Approaching the pond in the construction of the drain he found a run, seemingly, of hard clay encircling the pond. The clay was apparently impervious to water and so hard that picks were used in digging it. To complete the work they had to dig or pick the clay a depth of three feet, a distance of three or four rods so as to secure a sufficient depth to drain the pond and make it available for agricultural purposes. The construction of the drain was completed and served to drain the surface water away, but not to the depth desired, and also for the reason that the tile laid were not large enough to carry the water of heavy rainfalls away in time to prevent damage to the crop.

Four years after the completion of the first work the owner determined to take up the tile and lay a larger size. To his astonishment he found the clay that was so hard and apparently impervious to water when the drain was first laid, open and mellow; so much so that it was easily removed. He was so impressed with the change in the clay that he dug a trench out on each side to determine how far the clay had been so favorably effected by the action of the drain, and found that the strata of hard clay had become open and friable a distance of twenty feet or more on each side of the drain. The depth gradually diminishing as the distance from the drain increased. The drain removed the surplus water from the pond and percolation ceased and the air and capillary action of the remaining moisture did the work of making the apparently impervious clay a feeding ground for the roots of plants. When it is said: "I can't drain only two feet or thirty inches deep because my clay is impervious," we feel to say you are needlessly alarmed.

There are, however, areas of land where the clay underlying the soil clay puddles easily. If the drain has not sufficient capacity to carry the water of heavy rainfalls away quickly, the clay above and around the tile fills with water and runs together so tightly as to prevent the water passing through it except by very slow percolation, but a few months will open the puddled clay and the drains will work again. But it is much better practice to use larger tile in the first construction of the drains. If the tile are large enough and the work of digging the drain and laying the tile is well done, there will be little trouble from impervious clay.

Some Reflections.

The tile, if well laid, and in good working order, will drain the soil of its surplus water and allow the roots of the growing plants to run through the soil in all directions in search of their necessary supply of food, but when the tile are not there to do the work of drainage and aid the plants in their effort to grow a large crop, the result is about as follows: When we dig down we find in some places that the plants are killed, in others partially so, and all more or less effected. The crop hardly pays for the labor expended upon it. With perfect drainage the land would have almost doubled its production and returned a satisfactory crop, but for want of drainage the crop did not pay and for want of drainage a great deal of farming does not pay.

A TRIP THROUGH A MODERN POTTERY—ITS CONSTRUCTION, OPERATION AND PRODUCTS.

BY HARRISON EVERETT ASHLEY.*

THE PLANT of the Homer Laughlin China Company is located at Newell, W. Va., across the Ohio river from East Liverpool, Ohio, the center of the whiteware pottery industry of the United States. It is but a few miles distant from the point where the three States of Pennsylvania, Ohio and West Virginia come together. It is the largest pottery in the world. There are several other firms in the world having as large production, but in each case it is divided among a number of smaller plants, frequently in different towns. The building is 600 feet long. It is a walk of half a mile to go around it. It is built of the vitrified fire clay brick commonly used in the upper Ohio valley.

The product is semi-porcelain table and toilet ware. This is a product which approaches as closely as possible to true porcelain while still employing the earthenware technique. The success of the firm has been built upon a well-sustained excellence in the matter of freedom from crazing and toughness of body.

stored in bins, from which it is shoveled out into weighing cars.

These are emptied into blungers, in which revolving paddles beat the clay into a thin slip with water.

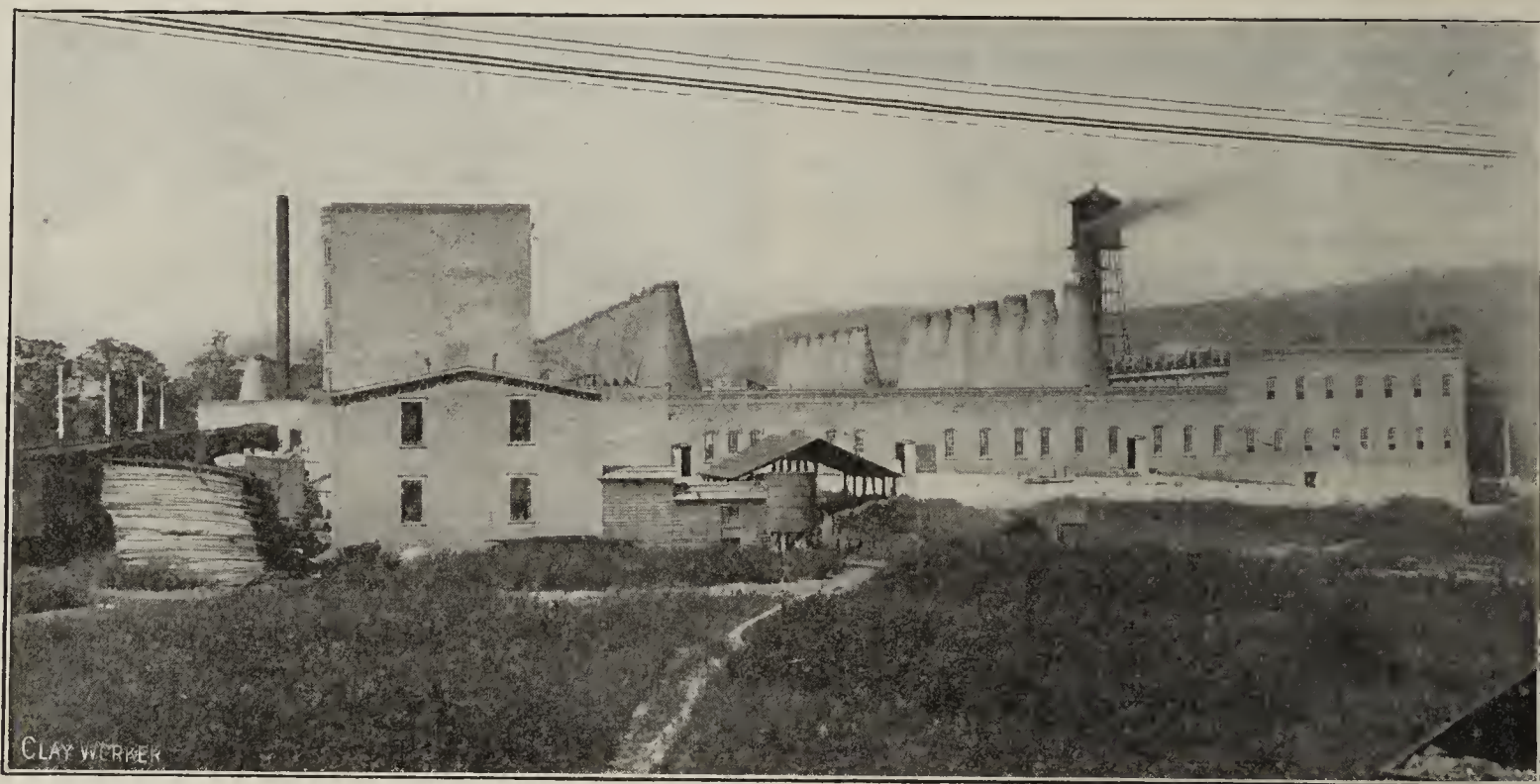
A cobalt blue stain is prepared in drag-stone color mills to neutralize the yellowish tint of the clays, in the same manner that laundry blueing is used in overcoming the yellowish tint of white clothing. This is added to the clay in the blunger.

The slip is sifted through a shaking screen of fine silk bolting cloth, and then is filter-pressed. The soluble sulphates of the pottery clays are mostly taken by the water that runs to waste from these presses. The truck loads of press cakes are taken to the vertical pug mill. This gives a bar in which lamination cannot be detected. The pieces, cut off from the bar by a wire, are elevated to the clay shop.

The ware is formed in or upon plaster of paris molds. In the mold shop plaster paris is mixed to a creamy slip and poured into cases. In these it hardens in a few minutes, and the mold is soon taken out.

There are three principal methods of making ware—jiggering, pressing and casting.

In jiggering, a lump of clay is beaten out into a thin sheet and thrown upon the mold. The mold is placed upon the



Rear View of the Homer Laughlin China Company's Plant, at Newell, W. Va.

In this talk I will follow as closely as practicable the progress of a piece of ware through the factory, from the time the clay arrives on the cars to the time the finished ware is shipped, packed in barrels and casks. I will not use very many words more than sufficient to explain each picture.

The accompanying view, showing the east side, gives a good idea of the arrangement. In the basement at the right is the sliphouse, where the clay is prepared. It is then elevated to the clay shop in the second story above, where it is formed into ware. The ware is then brought down to the bisque kiln shed (the right-hand row of stacks), where it is given the first burn. In the middle is the bisque warehouse and dipping room, where the glaze is applied. The glaze is burned on in the glost kiln shed (the second row of stacks). It is then taken to the five-story warehouse and decorated as required to fill orders.

The clay is wheeled in on barrows from the cars and

*By permission of the Director of the United States Geological Survey.

An illustrated paper read before the Twenty-fourth Annual Convention of the National Brick Manufacturers' Association, held at Pittsburg, Pa., February 9, 10 and 11, 1910.

head of a vertical revolving spindle, and a tool on a counter-balanced arm is brought down so that it is separated from the mold by a distance equal to the desired thickness of ware. After the tool has removed the excess of clay, the mold is carried into the dryer. Here in a few hours it shrinks away from the mold and is then carried to the finishers.

The finishers scrape off the rough edges and smooth the entire surface with a wet sponge.

The presser does not employ any mechanical assistance, but shapes everything by hand with a few simple scrapers and sponges. He makes the more intricate shapes, which a mechanism would have difficulty in following.

Many of his pieces have to be "stuck up," a phrase which includes the putting on of handles, etc. They are then finished like jiggered ware.

The caster pours thick slip into a row of molds. As the water seeps into the wall of the mold it deposits the admixed clay as a layer on the mold wall. When this layer is thick enough the excess of still liquid slip is poured out. The piece then dries, is stuck up, and is finished like pressed or jiggered ware.

To support the pieces during firing they are placed in sag-

Interesting Scenes in the Homer Laughlin China Company's Immense Plant.



Caster Filling Row of Molds.



Placing Ware in the Kiln.



In the Jigger Department.



Filling the Saggars.



Emptying One of the Large Kilns.



A Scene in the Kiln Room.

gers. These are made from grog (coarse burnt clay) and refractory clays, which are first piled in alternate layers and "soaked" with water.

The soaked clay is put through a taper barrel vertical pug mill, and then goes to the sagger maker.

The sagger maker beats the mix into sheets an inch thick, and builds the sagger by wrapping a long strip around a wooden drum, placing this on a bottom sheet, and then working the edges together with a wooden tool. The sagger is fired empty or very lightly loaded.

The "green" ware is snugly fitted into the fired sagger, round-grained white "placing sand" being used as a roller cushion on which the pieces can shrink unrestrictedly. A "wad," or long string of unfired clay, put on the top edge of the sagger helps in adjusting it in the kiln.

The kiln is directly behind the kiln placers.

In the kiln the saggars are placed in "bungs," or piles, ten to fifteen feet high. The bottom saggars carry a load of about forty pounds per square inch at the temperature of cone 8, or 1290 degrees C. Opposite each of ten peep holes is placed a trial sagger containing seger cones and also draw trials.

After firing, a gang of kiln drawers empties the ware from the saggars into ware baskets and takes it into the bisque ware room.

Here girls brush off the sand and dust that may adhere.

Glaze is ground with water in four-foot diameter ball mills, sifted and pumped to the dipping room.

Here it is put in tubs. The dipper swirls the slightly porous ware in the glaze slip, and a thin coating adheres. Girls place the pieces on boards to dry.

When dry, the glost kiln men carefully place the pieces in saggars so that no piece touches another. Most of the pieces are supported on the points of clay "pins" that are socketed in the walls of the saggars. The kiln men "head" the saggars while carrying them to the kiln. Loads of from thirty to sixty pounds are thus carried so steadily that only a few pieces are ever jarred from their proper positions.

The kiln men have a saying that they become white mules when they die, for no one with brains would carry such a load on his head.

The glazed ware is taken from the kilns by the same men that unload the bisque kilns. (The pins used in placing ware in saggars are shown in the bowls in the lower right-hand corner of the picture.)

The marks made where the points of the pins touch the glaze are chipped smooth by girls with hard steel dressing irons. The dressed ware is taken from its bins in the warehouse as required by the decorating department. The various styles of decoration are often combined on one piece. Those most practiced at this plant are printing, filling in, decalcomanie, spraying, gold stamping and gold lining.

The gold stamper spreads liquid bright gold on a glass slab and presses a cushioned rubber stamp first on the slab and then on the piece to be decorated.

The gold liner uses the same liquid bright gold, applying it with a camel's hair pencil to the edges and handles of the piece.

The printer fills the lines of a copper plate engraving with color and prints it upon soft tissue paper. His assistant fits the print upon the surface of the piece of ware and removes the paper.

The filler-in adds additional colors by means of a brush to the monochromatic print.

The decalcomanie decoration is a ready-made transfer picture, usually in colors. After the sheet has been applied color side down to a varnished surface, the paper is soaked off in a long trough of water. The picture so applied is frequently backed by spraying color upon the surrounding area, handles, etc. The soft decorations are fired on in a gentle fire, insuffi-

cient to soften the glaze. This allows the plates to be stacked on iron bats in the decorating kiln, and saggars are not used.

As most of the cost of potting is the labor, and a little material makes many pieces of ware, it is essential that bad material be excluded by suitable tests.

A kiln for rapid firing tests of the clays is shown. It is fired by natural gas and compressed air from the small rotary blower shown at the left.

In the testing room clays are blunged up to slip form in a small test blunger, impurities sifted out, and trial pieces made from the cleaned slip.

The test pieces are carefully saved in small paper boxes. Various experimental mixes are put up, and some colors are manufactured in the test room, which is equipped with scales, grinders, storage drawers, etc.

The finished product is packed in oat or wheat straw in barrels and casks. The straw is rammed in with steel paddles. It used to be a custom in the pottery trade to tell a dissatisfied customer to put the stuff back into the cask and return it to the factory. As the customer was rarely able to get more than half of the lot back into the cask from which he had taken it, he usually lost the desire to return the goods. As the Homer Laughlin China Company has grown to its present proportions by natural growth, putting up its own new buildings, and never by combining with other firms, it is evident that its customers were well satisfied to keep the casks they received and ordered more.

Written for THE CLAY-WORKER.

WITH THE BUFFALO BRICK MANUFACTURERS.

DESPITE A LONG STRETCH of unfavorable weather, brick manufacturers and builders of Buffalo and vicinity report a satisfactory business. Many structures are in the course of completion, and a number of others, including the mammoth Hutchinson high school, in which much brick will be used, are being planned.

The aldermanic committee on ordinances of Buffalo has agreed to report an amendment to the ordinances here fixing the wages of bricklayers employed on city work at 60 cents an hour. This is an advance of 5 cents, and it is reported that the change is in accord with the wage rate granted this season to bricklayers by local contractors.

The plant of the United States Lighting and Heating Company will be built at Niagara Falls, at a cost of \$225,000, by Snyder & Gillett.

Much brick will be used by Lyne & Hurley, Fredonia, N. Y., contractors, who were successful bidders for a big piece of State road to be built this summer in the town of Hamburg, Erie county, N. Y. Their bid was \$47,500 for one mile of brick pavement thirty feet wide in part and twenty-eight feet for the remainder.

An interesting report regarding brick, tile, terra cotta, etc., produced in New York State during 1909 was recently made by State Geologist John M. Clark at Albany, N. Y. The report is in part as follows: "The various materials of clay constituted the largest items in the year's record, with an aggregate value of \$12,351,482, as compared with \$8,912,863 in 1908. The increase of nearly 40 per cent in the value of the production was due principally to the revival of the building trades and consequent demand for structural materials. The combined output of brick, tile, fireproofing and terra cotta used for building purposes was valued at \$9,342,015, against \$6,071,850 in 1908. In 1907 these materials represented a value of \$8,909,392. The number of building brick made last year was 1,518,023,000, of which 1,218,784,000, or about three-fourths, consisted of common brick from the Hudson river region. The value of the pottery manufactures showed a smaller relative gain, with a total of \$1,827,193, as compared with \$1,653,241 in 1908. The number of plants that were engaged in clay manufacturing of all kinds was 232, or less than in 1908."

KNICKERBOCKER.

Written for THE CLAY-WORKER.

CLEVELAND AND NORTHERN OHIO BRICK AND BUILDING NEWS.



SUBSTANTIAL gain has been shown by Cleveland for the first four months this year, and the brick dealers and manufacturers here are highly elated with the way business is coming their way. According to the totals for the first five months, the total for the year will eclipse all previous records.

A feature of the permits this year is the large number of brick residences which are being built in all parts of the city. A great deal of hollow brick and tile is also being used for the erection of semi-fireproof houses. Less lumber is being used than formerly in homes and in the larger buildings it is now almost entirely excluded.

The brick manufacturers are busy as bees turning out their product. Many are sold out for several months ahead, and all agree that the present season promises to be one of the best in their history. The paving brickmakers are busy shipping to all parts of this and neighboring states, and every indication points to a big season for them, too. In Cleveland and Cuyahoga county alone many brick pavements will be laid, nearly all of them being under contract at the present time.

Among the larger buildings which have been announced are several of unusual interest to the brick men. It has been decided, for instance, to erect the New Anshe Chesed Temple of brick instead of limestone, as at first planned. Tapestry brick in warm red and brown shades will be employed, according to Architects Lehman & Schmitt, in charge of the work. The building is to cost \$150,000 exclusive of the furnishings. The general contract has been let to John Grant & Sons. The building is in the oriental style of architecture and quite massive in appearance. It is to be erected on the site of the home of the notorious Cassie Chadwick, who indulged in some frenzied finance several years ago.

An eight-story building, with a white tile front, is to be erected within the next few months on a site purchased during the past week by Morris H. and Joseph H. Glauber, of the Glauber Brass Company. The building will have a frontage of fifty feet and a depth of 190 feet. An apartment house, which at present occupies the frontage, is to be torn down to make way for the improvement.

White tile, by the way, is becoming tremendously popular in Cleveland, with its busy factories emitting more or less smoke all the time. The Cleveland Athletic Club is to follow in the wake of others and erect its new clubhouse of that material. It has made a lease of the space on top of the new five-story building on Euclid, opposite East Twelfth street, and will carry it up to a full height of twelve stories, using the upper seven floors for club purposes. These upper floors will cost about \$400,000. On the two upper floors will be a great steel tank to be used for a swimming pool, and a gymnasium which can be converted into an auditorium, which will seat 1,500 people. J. Milton Dyer is architect for the structure. The first five stories have just been completed and the remainder is to be ready for occupancy by Jan. 1 next.

A mammoth brick grocery warehouse, to cost about \$500,000, is to be built this summer on West Ninth street, at St. Clair avenue, for the Wm. Edwards Grocery Company, from plans which have been prepared by Architect W. S. Lougee. The building will face on West Ninth street and will be four stories underground, as it rests on the side of a hill. The west side of the underground portion will be open and will be served by a railroad switch. The walls will be of brick and the structural work of steel and concrete.

A new \$50,000 fireproof warehouse is to be erected for the

Fireproof Warehouse Company at Euclid avenue and the Nickel Plate tracks. The walls will be of shale and pressed brick and the interior of concrete. It will be about 60x150 feet in size and the second to be built by the company for storage purposes.

About \$200,000 is to be expended on a fine new theater and office building at Euclid avenue and E. 105th street. The playhouse, which will be known as the East End Theater, will seat about 1,500 persons and has already been leased to a vaudeville syndicate, to be opened Oct. 1 next. The office building in front will be five stories high, of light colored brick.

During the coming summer a \$100,000 depot for the Lake Shore Railroad, at E. 105th street, is to be started. It will be of red pressed brick and two stories. The same railroad has already begun the construction of a \$75,000 freight depot at E. 38th street and its own tracks. It has brick walls, with steel construction. The Lake Shore management has also indicated that within the next year it will proceed with the erection of a ten-story office building in Cleveland, as its present quarters are becoming inadequate.

Architects Searles, Hirsch & Gavin have let contracts for a new union telephone exchange for the Cuyahoga Telephone Company on Broadway. It will cost upward of \$40,000 and will be built by W. T. Paul's Sons. The Bell Telephone Company is planning a \$25,000 addition to its building on Champlain avenue during the coming summer.

A handsome new hospital building is being erected for the Babies' Dispensary Association at 2500 E. 35th street. It is a two-story fireproof structure of brick. It contains hospital rooms, a milk laboratory and a room for modifying milk. The contagious disease ward and the reception room are on the first floor. The building is to be ready for occupancy by Oct. 1 next.

Plans are being formulated for a \$1,000,000 office building and terminal for the interurban systems entering Cleveland. A company of retail merchants has been formed and stock is being subscribed. It is proposed to acquire a large tract of ground in the downtown section and erect an eight or ten-story office building, where the companies may make their headquarters. There will also be a large train shed adjoining. It is hoped that work on the new project can be started during the coming summer.

A new \$50,000 building is being erected for Gardner Abbott on Euclid avenue, just east of E. 55th street. It has been leased to the U. S. Government as a postal station and will be occupied in the fall. It is of dark brown shale brick, about 100 by 200 feet in size.

The Cleveland Builders' Exchange, to which most of the brickmakers belong, has announced that its summer outing this year will be held at Conneaut Lake, Pa., June 21-24, inclusive. The outing is not to be so far away this year as usual, as most of the builders are too busy to leave their work for more than four days at a stretch. Secretary E. A. Roberts is busy working out the details of the outing.

The Cleveland School Board during the past month issued \$500,000 in bonds for the construction of new school buildings during the coming year. Of this sum, \$300,000 will be for a new West Side technical high school, plans for which are about completed. The balance will be distributed among several grammar school projects.

A fire at Empire, Ohio, on May 20 destroyed the plant of the Standard Brick Company with a total loss of \$25,000. The blaze originated in the drying tunnel, and before it could be extinguished, the entire plant was in ruins. About 100 employes were thrown out of work. The plant, however, is to be rebuilt.

A threatened strike of bricklayers was averted June 1 by a compromise between the mason contractors and the bricklayers' union. The men have been getting 60 cents an hour and asked a five cent an hour increase. They threatened to strike unless given it. To avoid tying up building construction the contractors compromised on 62½ cents an hour and agreed to arbitrate the difference between that and the demand made by the men.

BUCKEYE.

Every man has a right to his own opinion, but that is not saying he should pass it along unasked to everybody else.

Written for THE CLAY-WORKER.

WITH DELAWARE AND MARYLAND BRICKMAKERS.

WILMINGTON, DEL., is struggling against a somewhat unhealthy condition. There seem to be many houses under course of construction, but few of them are sold. The Wilmington Brick Company is sanguine regarding the outlook of the brick business, bending their energies toward the suburban district. J. B. Oberly, in his consistent and conservative courtesy, confesses that he is at present supplying brick for seven small houses. Mr. Allmond, of the Delaware Terra Cotta Company, has on hand a contract for twenty-eight houses at Fifth and Union, and has just closed a contract for 1,000,000 brick, mostly for residences. Mr. Allmond goes a step further in assertion that the first "Dreadnought" our country built was named "Delaware," and said that the State of Delaware is going to live up to the first place in the esteem of our nation. Is that enthusiasm or heated air? Both are good—in their individual ways.

The "Dupont" people (powder works) are going to add a twelve-story building to their present structure at Tenth and Market streets, about 100 feet on Market, 88 feet deep.

With a sigh of regret that Wilmington cannot give us further good news in the brick line, we turn to the social side, and congratulate Mr. Allmond, senior, on the celebration of his seventy-fifth birthday. His old friends made it particularly interesting for him, and in an informal, hospitable way all were welcome.

Baltimore News.

The Monumental City is rather quiet in the building line; few warehouses, but many residences, are in course of erection. Burns & Russell always procure their share of contracts, and are naturally in a cheerful frame of mind. Mr. Edgette, manager for S. B. Dobbs, informs us of the following operations, for which they are serving brick: Forest Park, Pratt Library and Eisenbrandt's new place—Trent and Howard—tapestry brick. In Washington, D. C., they have a tapestry brick engine house, the finest in Washington; an apartment house, in which the golden tapestry are used; a residence in gray tapestry, and finally an addition to Congress Hall.

Maryland Terra Cotta Plant, Baltimore.

About three years ago the Maryland Terra Cotta Company was organized by Baltimore men interested in the manufacture of architectural terra cotta. This plant purchased a manufacturing plant in the suburbs of Baltimore and completely overhauled it, installing the latest modern equipment for the thorough and diversified production of architectural terra cotta.

The company's principal field is the South, and so successful has it been that it is now arranging to double its annual capacity, which is about 3,000 tons of finished material. Clay is obtained within a short hauling distance. After leaving the pug mill the clay is stored about three weeks to toughen and mellow, in order to arrive at a prime condition for molding. The principal plant contains six kilns, and covers an area of seven and one-half acres. The plant is on the main line of the B. & O. Railway, and has its own private switch extending directly into the works. Through an arrangement with the railroad, cars from any line can be switched into the siding, making shipment an easy matter.

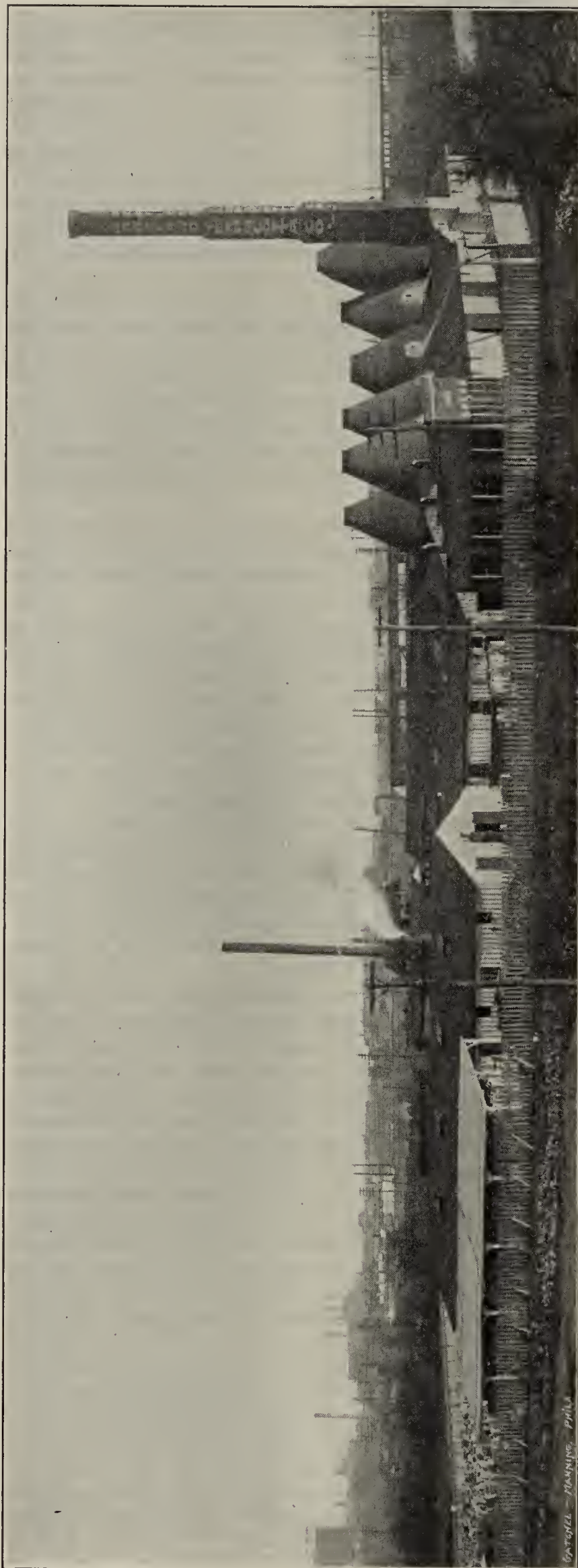
The officers are: John J. Kelley, Sr., president; Harry P. Boyd, vice-president; Philip Link, secretary and treasurer.

The company has served the following contracts: High school at Savannah; Young Men's Christian Association, Richmond, Va., and also in Baltimore; Standard Oil Company's office building at Baltimore; grand stand and bleachers at ball park, Pittsburg; St. Francis Baptist Church at Mobile.

The buildings in course of construction are: Park Terminal Station, Baltimore; Scott residence, Richmond; municipal building, Raleigh, N. C.; postoffice, Bristol, Tenn.; Naval Hospital building, Chelsea, Mass.; Norfolk & Southern Railway building, Norfolk; Harriet Lane Hospital, Baltimore. They have recently closed contracts for St. Mary's Industrial School, Baltimore; hospital building, Newport; No. 14 truck house, Gorsuch avenue, Baltimore. Besides these are a ware-

house for J. Lowry at Columbia, S. C.; office building at Morgantown, W. Va.; municipal building, Raleigh, N. C., and other contracts in Allequippa, Pa., Boston, Mass., and Bishopville, S. C. It will be seen from the above that the Maryland Terra Cotta Company is another name for success.

M. E. LOCKINGTON.



General View of the Maryland Terra Cotta Company's Plant, Baltimore, Md.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



V.C. SCRIVEN, ENO.

HERE HAS BEEN a large increase in the consumption of brick of all sorts during recent weeks, and, although there is still nothing in the way of a rushing business, the demand has become larger and the surplus has been somewhat reduced. The building outlook for the summer is good, notwithstanding a generally lifeless condition in most lines of business. The crop outlook throughout the Coast is excellent, and the country districts promise to become more prosperous as the harvest proceeds.

In San Francisco more brick building is under way than at any time in many months. The report of the building inspector for May shows a total of \$2,789,204 for building contracts. Of this amount \$1,797,937 was for contracts on brick buildings, \$872,887 for frame contracts and \$118,380 for alterations. The great preponderance in the construction of brick buildings is due to the replacing of the temporary "shacks" in the down-town district by substantial brick buildings in conformity with the building law. This brings the total recorded building contracts since the great fire up to more than \$160,000,000.

In the new work just contracted for there are provisions for large amounts of brick and terra cotta. In some of the larger and more expensive work a great deal of pressed, facing and other high-priced brick will be required.

In Los Angeles there is also a call for a lot more brick than in the earlier months of the year. In the official record of building permits issued in May there is a drop to about one-half from the three and one-third million dollar record for April, but this was to be expected, as the April showing was boosted more than a million dollars by two or three very large permits. Good progress is being made on the new buildings, and plans are under way for a lot more. Brick men are pretty well satisfied with the outlook for the summer, and are figuring on a long as well as a busy season. They are not anticipating any radical changes in prices, as the supply is ample for some time to come.

In San Francisco the extensive operations of the municipality in resewering the city are engaging the attention of sewer pipe manufacturers as well as brick manufacturers. Two contracts for sewer work, each aggregating about \$170,000, are shortly to be let, as well as contracts for a large amount of smaller work. The construction of fire cisterns in all parts of the city is being pushed forward rapidly. Two tunnel propositions are under consideration, either of which will call for large amounts of brick and concrete when once they are under way. It seems probable that the municipality will drill one or both of these tunnels, though one of them may be carried through by the United Railways of San Francisco.

The largest thing in the way of a clayworking contract that has been let for some time was the contract for the architectural terra cotta in the twelve-story and basement Class A building to be constructed for Mrs. Phoebe A. Hearst at the east corner of Market and Third streets. This contract went to Gladding, McBean & Co., of this city, for \$101,110. Gladding, McBean & Co. also have on hand a large amount of smaller work, and are pretty well sold up for the present season.

Christianson & Smith, of this city, have the contract for the brick and concrete work on the George W. Croley building, on Brannan street, near Fifth, for \$5,750.

Johnson & Seaholm have secured a \$4,400 contract for the brick work on the Charles J. King building, at Post street, near Taylor.

The Standard Oil Company, at its plant at Richmond, Cal., is experimenting with paving brick made from asphalt and sand. The new product is being tried by the East Shore & Suburban Railway Company, an electric railway company operating between Richmond and Berkeley and Oakland. The brick is being placed between the rails on the road. The first lot supplied by the Standard Oil Company was too soft for the purpose, but the second lot is expected to be satisfactory.

The internal troubles of the Vallejo Brick and Tile Com-

pany appear to have been settled. The superior court of San Francisco has decided in favor of F. W. Beardslee in the suit of E. G. Zeile for the recovery of 30,000 shares of stock in the company from Mr. Beardslee, and it is understood that the case will not be appealed.

C. B. Sharer and T. L. Meyers, representing the American Clay Machinery Company, of Bucyrus, Ohio, have been in San Francisco looking after some prospective work.

The Livermore Fire Brick Company, which has acquired all of the interest of the Tetley Estate in the brick plant at Livermore, Cal., is preparing to install a lot of new machinery and engage in the making of fire brick. New machinery has been secured through the American Clay Machinery Company. C. K. Holloway, of the Livermore Fire Brick Company, spent some days last week at the works arranging for the installation of the new machines. He states that it is expected to begin the making of fire brick not later than July 15.

Superintendent Shields, of the Monterey Lime Company, which has a plant near Monterey, Cal., reports that extensive improvements are soon to be made at the plant. It is understood that these improvements will amount to something like \$40,000.

Fred J. Stevenson and N. L. Potter, of Hanford, Cal., and others are planning to establish a brickmaking plant at that place, with a kiln capacity of 100,000 bricks.

The Southwest Brick Company, of Inglewood, Cal., reports having secured the contract for furnishing a million and a half bricks for the new St. Mary's Academy at Hyde Park, Cal., in competition with several Los Angeles brickmaking concerns.

Roberts Brothers, of Aetna Mills, Cal., have secured the contract for the brick for a new school building at that place, and they are now arranging to burn a kiln of bricks.

The owners of clay beds along the Spokane river in the vicinity of Coeur d'Alene, Idaho, are organizing to develop the property. An effort will be made to locate a brick and pottery plant on the property or near it. A board of directors has been chosen, with temporary officers as follows: W. J. Shockley, president; F. Mooney, vice-president; P. J. Quillan, secretary, and Lewis Connelley, treasurer.

The municipality of Cle Elum, Wash., is advertising for 11,200 feet of 12-inch and 11,200 feet of 15-inch pipe for sewers in that place.

The San Luis Brick Company, with works at San Luis Obispo, Cal., will resume work at once, with a large number of orders on hand from sugar plants and oil companies in the near-by towns. During the winter shut-down the plant of the company has been overhauled and put in excellent shape.

Stickle Brothers, of Gold Hill, Ore., have resumed operations in their brick yards, though they will not be operating at full capacity until after the arrival of their new machine, which will have a daily capacity of 20,000. This machine is now on the way, and will soon be installed.

The Standard Supply Company, of San Francisco, reports the arrival of the first paving brick turned out by the California Pressed Brick Company, of Niles. The company has a number of large orders on hand, and these are being filled as rapidly as possible. The first order filled was one from the Southern Pacific Railway Company for paving brick to be used at its new electric power plant at Alameda, Cal.

The Southwestern Brick Company, recently incorporated at Tucumcari, N. M., is preparing to erect a plant for the manufacture of pressed brick. The company is capitalized at \$200,000.

The Corona Pressed Brick and Terra Cotta Company, of Corona, Cal., has been filling a number of fair-sized orders. Just at present the plant is busy with an order for fifteen miles of 5 and 8-inch sewer pipe for the municipality of Winslow, Ariz.

F. C. Austin, S. M. Simpson, F. W. Esger and P. E. Greer have incorporated the Pacific Sewer Pipe Company at Los Angeles, Cal., with a capital stock of \$1,000,000.

The Coalinga Brick and Tile Company has been incorporated at Coalinga, Cal., with a capital stock of \$25,000. The company will engage in the making of common brick. Coalinga is the most lively of the towns in the California oil belt, and, as lumber is scarce and difficult to secure, there is a good demand for brick at profitable prices. The chief stockholders in the new company are W. H. Kerr, O. R. Cuttin, K. H. West-erheide, J. T. Hall and David Shroeder.

SUNSET.

BRICK AND STEEL CONSTRUCTION.*

CHARLES H. BEBB, SEATTLE, WASH.

THE REPORT OF THE DELEGATE from the American Institute of Architects to the National Conference Electrical Code and National Fire Protection Association in 1908, referring to fire losses in the United States, states: That in the investigation into the causes of fire and the ways and means that can be devised to safeguard property from fire and prevent fires from becoming conflagrations, there is a crying need that we should all, and especially architects, lend a hand and heartily co-operate in the work. This cannot be better illustrated than by a quotation from the truly appalling statistics of the tremendous loss of property, absolute and irretrievable, which occurs, not in any one exceptional year, but continually, year after year, with alarming and disgraceful regularity, and with increasing frequency of years in which great conflagrations like those of Chicago, Boston, Baltimore and San Francisco, not to mention many of only less magnitude, occur.

The property loss by fire in the United States in 1907 was \$180,000,000, more than half as much as the entire loss of the conflagration of San Francisco, and the average loss for the last thirty-two years has been \$134,000,000 per annum.

The insurance companies of the United States have paid out for losses since 1860 \$2,500,000,000, a sum almost equal to that of the national debt at its highest point after the Civil War, which was \$2,845,000,000, while the total loss by fire since 1875 has been \$4,250,000,000.

Statistics show that the loss by fire per capita in Europe, taking Austria, Denmark, France, Germany, Italy and Switzerland, averages 33 cents; in the United States, \$2.47.

We may well pause to consider what we really have accomplished in the science of building construction in the face of a report of this nature, and in doing so to seek the cause and possible remedy. In attempting to do this I shall confine myself to the commercial high building. The first construction of these buildings began in the early '80's.

To briefly sum the matter up in a few words, the cause of every fire in this class of building is, first, the ignorant use of improper materials in their construction, and second, the ignorant or careless use of the right materials in their construction. I do not intend to discuss which are the improper materials to use in the construction of the high building, because I wish firmly to take the position that burned clay products for both the exterior and interior construction are the best materials that human ingenuity has so far devised.

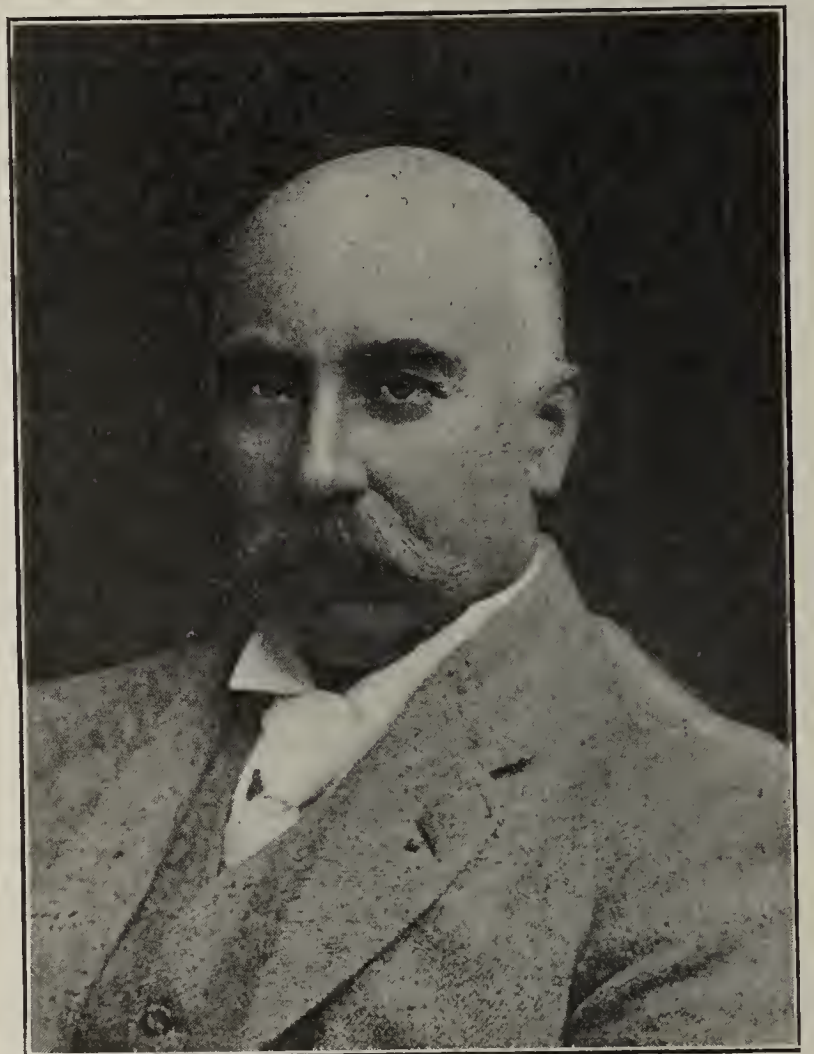
It would occupy too much time and it is hardly necessary that I should go back to the history of the beginning of steel construction. Cast iron columns and rolled steel beams and girders were used prior to 1888. From this time, however, what is known as the steel skeleton construction has been fully developed, and it has become the vital part of the building, and what every conscientious architect is seeking to-day is the question of how practically, scientifically and absolutely to cover the "skeleton" inside and out with incombustible material, under widely varying conditions and contingencies.

There are two classes of use for burned clay in fireproof buildings: one when used constructively under pressure, and the other when used as a non-conducting and structure-protecting material. In the first case it must sustain strains and at the same time resist heat for its own protection, and in the other it acts only for the protection of the steel members of the building. In some it performs both offices, as in the case of floors and roofs; in others it is inert as used in protecting steel columns and girders.

In considering the use of burned clay products for ex-

terior walls, we have structural terra cotta and brick, or a combination of both, to select from. Experience has taught us that the employment of these materials for protecting the steel framework of the modern tall building is as essential as the foundation and framework. The modern high building has a function to perform outside of its own structural integrity; in case of a conflagration it must serve as a check to the onward rush of flames and superheated air. The proper anchoring and tying of the fireproof material to the steel frame to prevent the building from shedding its masonry work is one of vital importance, and the higher the building goes the greater the importance. Terra cotta in combination with brick is the lightest building material to be had that satisfies all the requirements of modern office buildings. These materials come in convenient shapes and are quickly and easily handled, an essential factor in these days in putting up expensive buildings.

A building covered with structural terra cotta is the most fireproof wall that can be placed in the path of a conflagra-



Charles H. Bebb, Seattle, Wash.

tion, and on account of its comparative lightness it has become almost a necessity in twenty and thirty-story skyscrapers. From the architectural point of view there is no material which offers greater possibilities of beauty and harmony of coloring as well as such virtues as strength, durability, lightness and great fire resistance. In replying to a communication as to the life of a well-designed and executed building of the steel skeleton type, the question having been brought up by the Board of Regents of the University of the State of Washington, Irving K. Pond, the president of the A. I. A., considers that they would virtually be in as good condition structurally at the end of a fifty-year period as at the beginning. New methods of damp-proofing make the protection of the steel frame altogether practicable, and the glazing or under-glazing of terra cotta well adapts that material to withstand the ravages of frost and dampness.

Coming to the question of interior fireproofing, I again affirm that hollow clay material of what is known as porous terra cotta is the best material for floor construction yet de-

*Paper read before Washington Clayworkers' Association, held in Seattle, May, 1910.

vised, which equally applies to partitions and roofing. As essential as the proper protection of the steel frame in the outside walls is the proper construction and the use of right materials in the floor construction and protection of the interior columns.

The poorest form of construction for floors is the reinforced concrete where the aggregate is composed of gravel. Professor Woolson states, after exhaustive tests, in section 4 of his report as follows: "Concrete made with gravel aggregate is so weak after the fire test that it is practically impossible to test its strength." James Sheppard, in a paper read before the International Congress at Milan, Italy, says: "It has been conclusively proved that concrete made with gravel aggregates is especially unreliable under the action of fire, and the same may be said of other dense material. Aggregates that have passed through fire and are of a porous nature, such as broken brick, clinkers, clean coke breeze, offer the greatest resistance to fire." A test made by the British Fire Prevention Committee reads as follows: "On a floor 15x22 feet, consisting of two specially rolled 'broad flange' steel I-beams surrounded with reinforced concrete; three panels thus made were crossed by 4-inch, 5-pound beams 2 feet on centers and bedded in the concrete at the side of the large beams, but not bolted to them. These were surrounded with concrete, and the panels between them were made of concrete not reinforced and 5 inches thick. The floor was loaded with 280 pounds per square foot. All the filling was with gravel concrete. This concrete was composed of two parts of washed sand, four parts washed gravel and one and a quarter parts of Portland cement. This floor proved to be almost a total failure. The concrete on the bottom of the beams fell off and the beams deflected 7 inches. The small beams remained in place, but six of the seven panels fell out, letting fire and water through. It would seem merely common sense to prohibit the use of gravel reinforced concrete for floor construction in the modern skyscraper, and where, on account of cost, this style floor construction is adopted, only burned clay products or materials that have been through the fire should be allowed in the matrix."

Clay products for floor construction are made in the form of hollow porous clay blocks. Floors are arched between I-beams with either flat or segmental arches. Repeated tests have demonstrated that they are the very best material for floor construction. Speaking as a Seattle architect, I hope the clayworkers of the State will establish a porous terra cotta factory for the manufacture of every kind of fireproof material which enters into the building of a modern steel skyscraper. As far as I am aware, Chicago is the nearest point where this material can be procured, and freight rates make its use almost prohibitive.

In closing this paper I wish to speak of the interior column and girder protection of the skyscraper. In the report of the San Francisco calamity made by F. W. Fitzpatrick for the International Society of Building Commissioners, he says on this subject: "Insufficient column protection, the fire having once gotten into a building, was, I estimate, the cause of 90 per cent of the damage actually done to the structural parts of the injured buildings. There has been more bad fireproofing of steel columns in recent years than in any other parts of the buildings."

Eighteen years ago I wrote an article for the Engineering Magazine on the subject of "Fire Losses in Fireproof Buildings," an extract from which I wish to read:

"The function of a column is to support a load, and the higher the building the greater the load; the greater the load the more necessity for care in fireproofing. Of the general public who by thousands and thousands pass in and out of our modern tall office buildings, how often does one pause to think, as he passes an isolated column in the lower stories, that it is probably carrying from 150 to 175 tons? Not one in ten thousand; and the architect who designed the building,

from the manner in which the protection is often applied, apparently thinks as little. The dimensions of the iron itself, whether of cast iron or steel, are very properly reduced to their safe carrying load. The shape having been determined, the dimensions are worked out by well-defined formulae and accepted. But from this point dimensions of the column become a bugaboo to owner and architect. Almost any scheme that will keep the size down to a minimum is adopted. Miles of vertical piping for soil, waste, supply and revent enter into the construction of modern buildings of large size. And they run from basement to attic alongside of the most convenient column. Consider for a moment the space required for the pipes for a stack of wash basins in an office building. We have waste, hot and cold water supply, safe waste, and revent, running vertically against the nearest column. A plumber's helper, with hammer and chisel, is sent to cut away the tile arch at the base of said column at each floor. The hole is made 'large enough' to permit the passing through and screwing up of pipes with little difficulty to the plumber. All building nowadays is a 'rush job,' and there is no time to fill in and patch these holes with concrete, and even if done, the chances are that the plumber will begin turning again on one or other of the pipes before the concrete has become set, and in consequence it falls out. The piping completed, the fire-proofer starts to get in his work. The finished plaster line from which the tile is to be kept back three-quarters of an inch is generally his guide, and is rarely more than two inches from the extreme edges of the iron column. Then is the ingenuity of the mason called forth, and it takes a mechanic of no mean skill to accomplish the work within the requirements. With one-inch slabs and plenty of mortar to make them 'stick,' he makes a fair job on two sides of the column; then grooves are cut in the tiles often reducing the material one-fourth in order to cover a pipe that projects 'a little too far'; if, however, the mason is 'rushed,' he does as well as he can with chips and mortar, plasters the exposed pipe with mortar, and with a few nails and some cheap flexible wire a double fact is accomplished. The column is 'fireproofed' ready for the plasterer, and a continuous flue 150 feet high perhaps, for the possible passage of heat and flame, is created, with the bare surface of the iron column as one side of said flue. This may seem an exaggerated statement, but it is a fact, nevertheless, and can be demonstrated in almost any 'fireproof' building. This, of course, is bad, as by the sacrifice of some space the fireproofing of the column could be properly done and an enclosed shaft for pipes built alongside."

Porous terra cotta should be the only material allowed for fireproofing columns, and the very greatest care should be used in the method in which material is placed in the building.

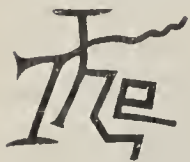
It is unnecessary that I should speak on the subject of partition tile, roofing and furring tile. They are so abundantly superior to any of their popular substitutes that words would be wasted. The fact that they are not procurable in the market at reasonable rates appears to me the sole reason why they are not as extensively used there as they are in the Eastern States. But I want to say to you that the demand is here among architects endeavoring to do the best class of work, and the field is open for the clayworkers of the Greater Northwest to fill it.

IMPORTANCE OF GOOD MORTAR WORK.

In good brick work—granting that the brick themselves are of the most perfect type—no feature is more essential than fresh and clean-cut appearing mortar joints. Mortar that grows shabby and fades will destroy the beauty of the finest architectural creation. This fact is but one of many, equally important, which the owners of the Ricketson Mineral Paint works, Milwaukee, Wis., have borne in mind during the twenty years of their manufacturing experience. Not alone in brick work, but for cement work of all kinds their colors have demonstrated the fact that they absolutely make the cement close and waterproof, and, what is more, their guarantee is "They never fade."

Written for THE CLAY-WORKER.

THE ST. LOUIS BRICK AND BUILDING SITUATION.



WET WEATHER of the past few weeks has interfered somewhat with clayworking operations as well as building, but during the interval of pleasant weather considerable work was done.

Reports from the managers of various brick manufacturing plants are to the effect that their work has gone on without any let-up, and they are ready for all the demands that may be made on them for brick for building purposes, as well as for other classes of work.

The system of issuing a classified statement of permits for building during any month recently inaugurated by the Building Commissioner of St. Louis is a great help to base comparisons on, and an actual comparison can be made between any month and the corresponding month of the year previous, and exact figures can almost be obtained of the number of structures built.

The system only has been in use a few months, yet by a perusal of April and May's statements it is possible to tell what class of structure is the most popular and just how many of each class has been under construction during the month.

The April report shows 137 brick dwellings, each costing less than \$20,000, twelve apartment houses, each costing more than \$15,000, and ninety-one flats, each costing less than \$15,000. The aggregate cost of apartment houses for which permits were issued was more than \$800,000, and more than \$400,000 was invested in flats.

Sixteen moving picture show houses were launched, and forty-five garages. Eighty-nine frame dwellings, the aggregate cost of which was more than \$60,000, were started. Four warehouses and nineteen factories and work shops were also begun.

During May one dwelling costing \$100,000 was started, two costing between \$20,000 and \$50,000, and 109 costing less than \$20,000. Four apartment houses, costing each more than \$15,000, and ninety-two flats, costing less than that amount. Ninety-two frame dwellings, twenty-four garages and eight picture shows were begun. The total amount invested in building operations in May was less than for the corresponding month of 1909, but the number of permits issued considerably exceeded May of last year.

June business will also, from the permits thus far issued, be good. The proportion of various structures also will be about the same as in May.

The Mound City Roofing Tile Company recently bought a factory site on Morganford Road and Fyler avenue from the Russell estate, paying \$8,000 for it. The company will at once spend \$10,000 more on doubling its plant and capacity. It is one of five similar concerns in America, and its history is considered remarkable from an industrial standpoint. Five years ago the Mound City Roofing Tile Company rented the site, which it purchased and started in business with St. Louis capital only. On rented ground the company made enough money to justify expansion by purchasing the ground outright and doubling its plant.

The Board of Public Improvements of East St. Louis a couple of weeks ago decided to pave the main street of the city with brick, involving the spending of \$280,000. There was a strong fight on as to whether the street should be paved with brick or creosoted blocks. The creosoted supporters wanted the street made into a boulevard, while those favoring brick wanted it continued as a business thoroughfare. A petition with the signatures of property owners representing 21,000 of the total 34,000 feet concerned decided the board. If an agitation which has been begun succeeds, all of State street from East St. Louis to Belleville, a distance of fifteen miles, will be paved with brick.

A watchman for the Progressive Pressed Brick and Machine Company was assaulted and probably fatally beaten by two men at the plant early one morning recently. The two then entered the offices and stole some stamps and money, but they

did not tamper with the safe. A year ago another watchman for the company was struck down near the same spot and the officer was robbed.

Eighty-five out of ninety laborers at the plant of the Murphysboro, Ill., Paving Brick Company struck early in the month because the company refused to grant a new scale, increasing the wages of laborers from 17½ cents to 25 cents.

The St. Louis Vitified and Fire Brick Company reports that they are quite busy in their manufacturing and shipping departments. Some of the shipments went to the extreme Northwest and to Canada.

The Evens & Howard Fire Brick Company have been awarded the entire contract for the new equipment of the Laclede Gas Light Company, who are about to make a complete change in their manufacturing methods. The new equipment is said to be designed for the manufacture of coal instead of water gas. What work the Evens & Howard Fire Brick Company do not do will be sublet to other parties. There will be twenty benches of retorts in two stacks of ten each, each filled with eight twenty-foot retorts.

George W. Jones, secretary of the Evens & Howard Fire Brick Company, says the business is seasonable. Some good big contracts are in sight, but they have not reached the point where they can be closed. The demand for sewer pipe is fairly good, and will get better.

Walter Grath, of the Illinois Supply and Construction Company, says business is fairly good in brick machinery.

The Scott-Madden Iron Works Company are having a fair call for their brick machinery, although the season this year is somewhat backward. Many inquiries have come in for figures, etc., but orders have not materialized as they should.

A. SAINT.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.



THE BUILDING situation from the Puget Sound clayworkers' standpoint is not very reassuring at present. The building operations are not to be taken as a comparison to the activity of the brick yards. Demand for brick has been rather slow all through the month, and with no prospect of any increase in the demand. Prices are about the same as last month, with a slight tendency to go higher.

The Washington clayworkers' convention at Seattle was quite a success. The relationship between the various clay manufacturers of the state has proven more than beneficial to all parties. Mr. J. F. Hobson, of Hobson Brothers, of Wenatchee, reported quite a large demand for his brick. The Pontiac Brick and Tile Company invited all the delegates to their yards, and Mr. T. J. Dennis willingly explained all the details of his continuous kiln without a stack.

The Denny-Renton Clay and Coal Company are very busy at their Renton plant. The paving brick industry is in flourishing condition and the demand far exceeds the supply.

The Tacoma Trading Company has started its yard again on Fox Island, and with the improvements made during the winter, they will be able to turn out a large amount of brick.

The Little Falls Fire Clay Company has let the contract for a Youngren continuous kiln for their new paving brick plant at Palmer, and the management hopes to be able to make brick before August.

C. M. Mitchell, who is connected with the Ballard Brick Company, has made several prospecting trips to Vancouver Island, British Columbia.

The Northern Clay Company, of Auburn, has completed the improvements under way last spring. The company reports business good. They secured several good contracts this month. They will furnish the terra cotta for the eight-story Lyon Building and also the Immaculate School, both to be built in Seattle.

The Far West Clay Company reports business good. They have shipped several cars of tiles to the Oregon Asylum at Salem. They have changed their system of burning from wood to coal, and are making good partition tiles.

Seattle, Wash., May 31, 1910.

SIWASH.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Wants to Buy a Brick Plant.

Editor THE CLAY-WORKER:

I have sold my interest in the brick business here, and am in the market for an up-to-date plant, or some plant that can be made up to date, or for clay lands upon which I can put a good plant, in or near some hustling city. I prefer the South. If you know of anything, I will appreciate your letting me know. Yours very truly,
Augusta, Ga. W. D. MERRY.

A Remedy for Light Colored Brick.

Editor THE CLAY-WORKER:

In April CLAY-WORKER A. E. Hilder says that he burns a red brick, but the brick lose color when burned hard enough. Try 10 per cent of iron ore, common. If he don't get the desired effect, try the same quantity of crocus without the iron ore; then if he don't get the brick red, try 10 per cent of iron ore and 10 per cent of common manganese, and I am sure he will get the desired results. But never use salt, as he will have the brick scum after being in the weather a while, and that will condemn them. Yours respectfully,

H. W. HARDY.

Information Wanted in Regard to Burning with Natural Gas.

Editor THE CLAY-WORKER:

We have been figuring on using natural gas at our plant, and have had several estimates as to how many cubic feet it would take to burn 1,000 brick. We make a red dry pressed brick for common use, 2¼ inches thick. There has been such a difference in the estimates as to the amount used that I thought we would write and see if you would do us the favor of writing us as to about what gas is required to burn 1,000 of our brick. Trusting to hear from you soon, and thanking you for the favor, we remain,
Yours truly, M. HALPIN.

English Brickmakers Favor Down-Draft Kilns.

To My American Brothers:

Having noticed a discussion in the April number of THE CLAY-WORKER regarding up and down-draft kilns, I myself can testify to what Anton Vogt has to say on the cost of working down-draft kilns. They are much cheaper, taking every detail of building and working into consideration. They can be burned cheaper, for the reason that they turn out a much better class of goods, with practically no waste. They can be burned cheaper if they are properly looked after while on fire, taking less fuel. At one time, and the time is long ago, here in England there was no other kiln but the up-draft. Now there is practically none in use. Every brick works built now puts in a continuous kiln for common brick, if they can afford the expense, but they do not put continuous kilns in for best grade of goods, but either a good square or round down-draft. The reason for this is that they get a uniform quality of goods from them.

There is no brickmaker in England who would think of erecting an up-draft kiln at the present time, as that would ruin them very quickly. My readers must bear this in mind: that all brick burned here must be whole, and they want to be

hard and in good shape or they will be rejected by the architect.

Now, my American brothers, when they are building down-draft kilns, should build them so that the bottom will finish first; then you get brick of a uniform quality from top of kiln to bottom, without any waste; they should also put them in line, so they can take the finishing heat from one kiln to the other. Put fire in next; then they will get the goods hot without smoking them, saving the discoloration caused by smoke. While on the start the goods get smoked all over with smoke, causing a soot to settle on the goods and discolor same. By the way I have outlined above, this can be saved, as the heat passes from one kiln to the other without smoke touching them; also, a great deal of coal can be saved during the firing, as the kilns get red hot before beginning to use fuel on same. It also saves a lot of labor.

England.

H. W. HARDY,

Lamination Trouble.

Editor THE CLAY-WORKER:

In reply to Mr. Demler's letter in the May CLAY-WORKER on more light on lamination trouble, I must of necessity, to be successful in my theory, be at variance with all other theories so far advanced, as all others have proven failures. They have not found the seat of their trouble, or a cure for the same. I must not follow in the same rut that all others have followed, or it will lead me to have the same failures that others have had in the past. I think it is well to discuss this matter thoroughly, as it is a troublesome matter to nearly all clayworkers, as long as it will be of interest to them and THE CLAY-WORKER is willing to publish them.

I understand the kind of circular lamination that Mr. Demler speaks of in February CLAY-WORKER. We are both talking about the same lamination. Now, there is a plastic, slippery clay that will run over cast iron, and also a tough, sticky clay that will not run over cast iron. You may get this sticky clay through the die with a lubrication, but not through the auger without sticking to it. Mr. Stoll, to whom Mr. Demler refers, suggests the use of coarse grog to take away that smooth condition of the clay as it leaves the auger. He has simply done the reverse; he puts in enough coarse grog to take away that sticky condition of the clay so that the clay will run smooth over the cast iron auger; he has introduced a different element into the composition, thereby changing the nature of the composition in such a way that it becomes sharp enough to readily slide over the cast iron, making the column smooth as it leaves the auger. He cannot roughen the clay bar this way, as the small molecules of clay fill up all the large crevices of the grog, but has sharpened the composition. There is but one process of welding a clay together; we must bring the small molecules or grains of clay together to make them weld or stick, and the smoother the surfaces to be welded are the more easily they are welded, as it takes less pressure. There is no interlocking of the grains, or that one grain welds into another, but the grains are so small that, brought together with moisture, they will stick to one another.

Now, we will take the ruffled clay first. If you take a brick from the cutting table and break it and reverse the broken parts so that they will not meet again at the same point, you will have to use extra force or will have to knead them, like women knead their bread, to make the clay weld again; but you take two brick from the cutting table and put the smooth faces together as they come from the die, you will find that it takes but very little pressure to make them stick or weld. Why do so many brickmakers have to sand their brick as they come from the machine to hack them on the cars? Simply to keep them from sticking or welding together. Mr. Demler says further experiments not yet published indicate that the clay welds after leaving the auger. There is no question about that; it must; it cannot weld before it leaves the auger. Just imagine how a coil of rope looks. Well, a clay bar looks just like it after it leaves the auger. There has never been any force brought upon it until after it has left the auger. It must weld after leaving the

auger, somewhere between the point where it leaves the auger and the mouth of the die, but the most welding is done just after it leaves the auger and before entering the die proper. Now, don't forget that it is the force exerted by the auger that has to weld the clay, and not the die. Now, I wish you to fix this in your minds: that the larger the bar of clay is as it leaves the auger the less welding there is to be done and the more pressure there is brought upon the clay to weld it as it is forced through the die; if the auger is choked it leaves a smaller space for the clay to come through, requiring a greater number of turns of the auger to supply a sufficient amount of clay to make a brick, therefore more surfaces to weld and a possibility for more lamination. You cannot get the same power to weld as in the case of a clean spiral or the full capacity of the screw.

Mr. Demler did not quote Mr. Stoll quite far enough. Prof. Bleininger asks Mr. Stoll what he thinks of the benefit derived by extending the barrel of the auger. Mr. Stoll admits it would help it, but it is at the expense of the steam power. That is just my theory. If you can get enough resistance so you can get the pressure behind it, you can weld any clay. Now, I claim I get this extra power with a clean spiral, and not at the expense of the steam power. Mr. Stoll further says that the trouble is in the clay rather than in the machinery. There is no doubt about that, but instead of changing the nature of the clay I overcome the trouble with the steel auger.

Some think they have a polished cast iron auger. It is apparently white and polished to the eye, but you put a microscope upon your auger and you will find your metal very porous. You try the same thing on a steel plow that has been polished by wear, and you will find a surface as smooth as glass. It is very easy to prove this. Try it, and just use your thinkers a little more. Don't say that this old world of ours is flat because they all said so once upon a time. We have learned better. We will do the same thing in this case—do a little investigating for yourself, and think.

HERMAN NEITZEL.

Manufacturing of Roofing Tile.

Editor THE CLAY-WORKER:

When roofing tile manufacturing is started it is (from a business standpoint) the best to select the most common patterns that are in use; there are plenty of them on which there is no patent right or royalty. Also, make your choice between two distinct types, the non-vitrified and the vitrified tiles. We will first consider the non-vitrified type. This kind is and has been very successfully made in Europe for hundreds of years. If the right kind of shale or clay is used they can stand the wear and tear of the climatic changes. Outside of the decorative purpose, roofing tile is made principally to shed water; therefore, the body must be thin and compact. Thin to make it light on the roof and for shipping purposes; compact to let the water run over it without going through it. A non-vitrified tile absorbs about 10 to 12 per cent of water. This will not damage the tile, however, if properly made. To make them right, select a pure plastic material; grind this very fine in the dry pan, or if used wet from the bank, as fine as possible with the rolling process. The next move is the pugmill, in which the material is mixed with water to a consistency of softness between a soft and a stiff mud brick. Impossible to lay down a hard and fast rule in this case, but work the clay as soft as is practical. As a general rule not enough attention is paid to preparation of the clay in the manufacturing of clay products except in potteries where most of the finishing is done by hand and where the bad effects can be easily traced to the cause.

In roofing tile manufacture it is very important you exercise care in the preparation of the clay. If possible, weather the clay or shale before it is put in the dry pan or rollers, the expense of this being more than made up in the quality of your ware and less power and repair bill on machinery. The softer you work the material the more you counteract the disastrous laminations caused by the auger machine. It is much easier to destroy the laminations in the soft than in the half soft mud when the tile is pressed in the machine. A great help in preparing the clay is to build a storage bin

or soakpit. After the clay leaves the pugmill, dump it in the soakpit. Do not depend entirely on the man that you call often by courtesy a temperer, but take the precaution to have a few days' run of ready clay in stock that can be used and is very handy when small repairs must be made on clay preparing machinery. The dies to make the tile in, on the press, must be made from plaster of paris; they make mechanically the most perfect tile.

Drying.

This is a very important part in the manufacturing and is done in different ways. In the open air, this means in sheds without heating, it takes from ten to twelve days, or you can say it depends on the weather, and can only apply to summer factories. In tunnel dryers on rack cars, as is customary in brick factories, or if a continuous kiln is used, on top of the kiln, in specially constructed buildings, with racks to dry the tile on, the rack car is preferred; it is a unit that can be handled by itself when it is moved in the factory.

In the other processes each tile has to be moved separately. Time of drying depends on the shrinkage of the clay or shale that is used. For a shrinkage of about 6 to 7 per cent it is necessary to have about three to four days of drying. More plastic clay, that is, more shrinkage, needs slower drying.

The hot air used for drying is produced with the regular fan and coil system if there is exhaust steam available; if the cooling heat of the kilns is used the necessary hot air ducts and fan are used.

In building a dryer provide dry room enough, a little more than enough is always an asset that pays big dividends.

Make the tiles dry before putting them in the kiln; it saves you a good many disappointments afterwards.

It is rather a hard problem to select the best drying system. According to the salesmen, each is the most economical and the best fitted for your special purpose, but the man who buys had better look out not to buy the most complicated or automatic working system. It is often very difficult to keep them regularly running without the assistance of a specialist, who is sometimes hard to get in the place where you are located.

There are different systems of tunnel dryers. One is the so-called pushing system, where the hot air is pushed in at the hot end of the tunnel with the cold end open to let out the moisture. Another system is an entirely closed tunnel, where the heat is entered at the hot end and the fan attached to the cold end to pull the heat and moisture through the tile. A third system is a combination of the two previous ones. A fan is used to push the heat in at the hot end and a fan is pulling the hot and damp air at the cold end.

Do not make the tunnels too long—70 feet is long enough.

Burning.

After the tile are thoroughly dried—dry means dry and not heavy with moisture—put in the kiln to be burned. By putting nothing but dry tile in the kiln you can hurry the burning the faster. When this is done the less danger there is of overburning the tiles close to the fire. Good draft, with a kiln bottom that can retain the heat to a certain extent, is a first necessity for a quick and successful burning.

Do not use too large a kiln to burn roofing tile in. All kinds of kilns are used; the up-draft is not very much used in America; the down-draft, round or square, and the original Hoffman continuous kiln and the continuous chamber kiln.

The setting of the non-vitrified tile is done as in common brick, the one on top of the other; pack them in as close as practical and depend on the shape of the tile to take care of the draft flues.

As we have seen that the shrinkage in drying is in non-vitrified tile the medium to make the body close or compact; it is up to the burning to make this body weather proof. Burn the tile as hard as is possible without damaging their shape, or in other words, do not warp them by burning too hard. 1,800° to 2,000° F. is about the temperature. If it is shown in practice that the clay can stand a higher heat, by all means burn harder, but do not do it and make culls out of good tile.

Red roofing tile, like red brick, will always be of a very desirable color and often the clay or shale that will shrink

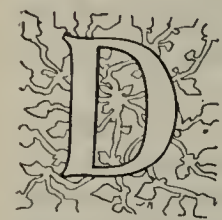
enough in drying to make a good body for non-vitrified tile burns to a light red color; to overcome this difficulty and produce a dark red tile, in burning the tile is slipped the moment it leaves the dryer and covered with a thin layer of red clay; this is burned or vitrified on the tile and forms a very good red semi-glaze. Different slips and glazes are put on the surface of the tile to give them the desired color effect. All are put on before the burning and consist of clay slips or lead glazes.

Later we will take up the vitrified tile.

STOLP & WIEDERHOLD.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE KENTUCKY METROPOLIS.



DESPIITE THE VERY BACKWARD spring and summer, and the excessive amount of rain, the building permits in this city for the first five months of the year have shown a most favorable increase over the past two years, and the larger percentage of the same have been for small structures. The report compiled at the office of the building inspector shows the amount of permits issued from January to June to be \$1,521,748, as compared with \$1,108,131 for last year and \$1,058,676 for 1908. The present year's increase has been about \$450,000.

There are in prospect now and permits will soon be issued for the following structures, which will make the showing for the present year very much larger. These include the First Christian Church, \$150,000; the Tyler Hotel, \$200,000; the Weissinger-Gaulbert apartment building, \$500,000, and the Kentucky Title Company's building, \$750,000. Aside from this there is a rather active demand for residences, and the percentage of increase in this way over the past two years bids fair to become a source of pleasure to the brick and building supply men.

It is true that there has been some hesitancy on the part of many prospective builders, and this has been holding off considerable work. The exact reason for this is difficult to find, and no one really appears to give a plausible reason for this action. Both materials and labor are less costly than they were several years ago, and the demand for offices, stores and residences is increasing. Of late there has been a considerable increase in the demand for apartment structures, and there is a larger number of new buildings of this type being erected than was the case in previous years. The large majority of these are being erected with brick, and there are some very attractive styles of fancy brick being received at this market of late.

Street work is showing an increase, and there is a large amount of brick streets being laid here. Prices for both brick and for laying them have been holding pretty firm, and there is noticed both a better quality of brick and more care in constructing the streets than was shown here earlier in this line of work. Both the city and the contractors realize that there is more real economy in having a good brick and in making good streets than by endeavoring to cheapen them with inferior material and labor. Where such rules are adhered to by both the city and the contractors, the results are showing the wisdom of such action. So many streets have been condemned with justice on these accounts that at last there is more judgment being used in this respect.

The call for sewer pipe and conduits is increasing, and there is no complaint being heard with regard to these industries. Drain tile is in fair demand, and there has been a very fair demand for the latter during the spring months. Taking the clay manufacturing industry as a whole, there has been a good business this year, and the prospects seem fair enough for the future.

Mr. Patrick Bannon, Jr., stated that there has been a rush at the plant of the P. Bannon Sewer Pipe Company in the past month or so. Their large plant is working full, and the continued activity with them has been very gratifying. The demand has been from many sections, as well as locally.

The report at the plant of the Southern Brick and Tile

Company was to the effect that the demand had been as active as they could look for, and they were pleased to find the business continuing with such strength. Not only is there a brisk demand for building and fancy brick, but likewise for drain tile. Both plants are in operation.

Continued delays have occurred in the work of beginning the erection of the large plant at Charleston, W. Va., for the West Virginia Clay Products Association. The report at the local office is to the effect that they hope to get busy by July 1. Just as soon as they begin there will be a rush to complete the plant.

The Louisville Fire Brick Works, with their plant at Highland Park, Ky., find that the demand for various lines of fire clay commodities is still active, and they are operating their plant at full capacity.

McCollum & Co. are doing as much business in building brick lines as it is possible to do at the present time, with their plant in full operation, and selling all the brick that they can turn out.

The new dryer will soon be completed at the plant of the West Point Brick and Lumber Company, at West Point, Ky., and with this addition the company will be enabled to do considerably more in the manufacturing of brick. They are still active, and say that there has been a good demand for building brick with them.

The Burrell & Walker Clay Manufacturing Company are hard at it at their Owensboro, Ky., plant, and are doing a fair business locally.

The Louisville Brick Company are keeping things on the go these days, and are finding it somewhat difficult to keep abreast with their orders. They have been doing a very fine business in building brick in the past few months.

The Louisville Pottery Company find that there has been an increase in the demand for a general line of pottery goods, and that the indications for the coming months are of the kind that look favorable. They have been receiving some reports to the effect that there has been some damage to the fruit crop, but these may be premature.

The Hydraulic Brick Company continue to be active, and are operating their several plants, keeping the orders for brick well supplied.

Another building with a Rookwood tile front is soon to be erected here for John Klein as a modern cafe. The contract has been awarded to the Hegan Manufacturing Company, of this city. Work will be started on this very soon, and it will be completed within a few months.

There has been a continued activity at the plant of the Kentucky Vitrified Brick Company. They find the demand for paving brick to be holding up well, and say that there is no fear of any decline as far as they can see now. Orders have been coming in rapidly, and the situation is good.

WARFIELD WEBB.

WELL-KNOWN ARCHITECTS AND FINANCIERS INSPECT PLANT OF FEDERAL TERRA COTTA COMPANY.

An important industrial undertaking was launched May 17, when some two hundred men prominent in financial affairs inspected the recently constructed twenty-acre plant of the Federal Terra Cotta Company, situated at Woodbridge, N. J. A special train took the guests to the works at 1 o'clock, where a luncheon was served by Sherry.

No expense has been spared in making this factory the best equipped in the United States to turn out the finest quality of work. It was built to meet the growing demand for a high class of work, such as has been used in the construction of the Plaza Hotel, the Parkhurst Church, the City Investment Building, and other notable structures.

The officers and directors of the company are as follows: DeForest Grant, president; Edwin Thorne first vice-president; William Manice, second vice-president; Frank A. Thayer, treasurer; Dwight W. Taylor, secretary. Directors: John E. Berwind, Edward R. Stettinius, Madison Grant, William B. Dinsmore, Alfred H. Bond, Rodney Thayer. Others interested financially in the company are Stuyvesant Fish, Goelet Gallatin, Dr. H. Holbrook Curtis, H. A. Berwind, B. N. Duke, William DeForest Haynes, Schuyler Schieffelin, Dr. Lewis R. Morris, E. H. Wells and Norman Grant.

Among the guests were Walter H. Clough, J. Stewart Bar-

ney, W. S. Dinwiddie, F. L. V. Hoppen, Percy Pyne, Calvin Tompkins, Theodore Starrett, Henry Ives Cobb, Willard S. Brown, J. Lawrence Aspinwall, James Brown, Goldwin Starrett, William S. Post, Paul Starrett, Stephen Tyng, Jr., Evarts Tracy, Charles A. Dana and Ralph Rheinhold.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

MOVEMENT AND PRICES have not changed materially since last reports, except that new brick are now going to market, and substantially all the old stock has been cleared out. Nearly all of the old stock went before the prices declined, consequently the Jersey manufacturers obtained full prices for their product, which was more fortunate than some of those elsewhere. The new stock now going out is bringing full prices. Raritan Rivers, for example, are quoted at \$6.25 to \$6.50 in New York, and perhaps at a shade more in some of the smaller centers at home. Of course, this figure is only paid for the best stock, perfectly clear and free from all sorts of imperfections. A considerable proportion is not so favorably situated. The rains have been heavy and continuous, and more than one yard of brick almost dry and ready to be put into arches has suffered severely in consequence. Lower prices will result, but these accidents are beyond the control of the manufacturer.

In discussing market possibilities this season most manufacturers seem to be optimistic. They do not expect as high prices as some of them obtained last year, but so far the outlook is satisfactory, and the big building contracts recently let, with the projects known to be under way, are sufficient evidence of the fact that trade will be good throughout the season. The development of real estate throughout New Jersey and New York as well will reach more liberal proportions than ever before. These things the manufacturers know, and are not worried about the future.

The only disturbances so far have been confined to incipient or threatened strikes in one or two places. There seems to be a growing determination on the part of employes to have from 15 to 20 cents a day more. This means, of course, a considerable addition to the expenses of operating yards, but perhaps the manufacturers will see their way clear to pay it where it seems necessary.

So far no move has been made corresponding to that in the Hudson River section of New York asking for a reduction in output required of separate men, but numerous employes have discussed the matter with the writer, and are clearly of the opinion that it would be better all around if this reduction was made. They say that too much is asked of the men now, and that the reduction in output per man to a figure which they could handle more carefully would improve the quality to such an extent that the value would be increased enough to pay the actual difference in expense. While individuals have talked of this, no organized objection has been started as yet, though possibly it will come to that in the end.

A little trouble occurred at the Perth Amboy plant of the Atlantic Terra Cotta Company during the month, resulting in the discharge of a number of men and a threatened strike. But the difficulty was settled without material harm. A car of terra cotta was burned after it was loaded, and ugly threats were made, but the storm blew over without anything serious happening.

Building operations in the remoter suburban districts of New Jersey will not be quite so active as was expected, because of the increase in commutation rates which goes into force on July 1. The advance ranges from 5 to 25 per cent, and in the more distant sections even more. The result will be that commuters will be a bit chary about settling in the more distant places, choosing, rather, those nearer, like Jersey City and Newark, or their immediate vicinity. Conditions are such that this increase is a good deal of a deterrent to set-

tlers, and may, in some instances, lead to the cancellation of contracts already made. Where the increase is more than a dollar a month the influence will be distinctly against development, but if it is less little fear is expressed that it will do much harm.

The result will undoubtedly be that it will result in attracting settlers who will erect much better and more expensive dwellings, since the matter of a dollar or two a month extra commutation will not trouble them. Those who cannot afford it will have to go nearer the centers.

Further discussion has begun over opening the drawbridges over the Passaic and Hackensack rivers. Many thousand commuters travel over these bridges twice daily. Whenever a draw is open and a train is delayed from five to twenty minutes, as is sometimes the case, the loss to those on board the trains is enormous. Petitions are now in circulation asking that the draws be closed during specified periods to prevent the delays which are now common.

This interests the brick men, because it is the traffic in brick down the Hackensack river which the secretary of war is protecting. A few coal barges, and occasionally a lumber barge, go up the stream to some of the towns scattered along its banks, but the brick traffic is the principal interest, and the manufacturers along the Hackensack ought to feel themselves highly honored that they receive from the secretary of war consideration surpassing that received by the great freight interests on the Harlem river.

Miss Loretta M. Radel is building on Center street, South Orange, a house unique in architectural design and material. It will be constructed wholly of tapestry brick, with white marble trimmings. W. Pell Pulis and Eugene A. McMurray, of Newark, are the architects. The structure will be two and one-half stories high, seventy-eight feet long and forty-five feet wide. Porches will be constructed on each end, and the front will have a tiled terrace. Features of the interior will be the elaborate layout of the floors, the decorations, the staircases and the fireplaces. In many respects it will be the most attractive house in New Jersey. Its cost is estimated at \$40,000.

A. L. B.

WHY BRICKS CRACK.



One Solution to the Much Mooted Question.

BUTTON-HOLE TALKS.

THE COLONEL ON INTERIOR DECORATION.

FOR ONCE the Colonel was not in his office, a mighty unusual thing for him, as he was generally as regular as a clock, and was always in his accustomed place at regular hours. There was no mystery about it, however, because the office was in the hands of the painters and decorators, going through a sort of spring cleaning and painting. It was not an annual affair, because it was evidently a thorough redecorating, such as probably takes place once in five years in the average office. Through patient inquiry and a little wandering around, the Colonel was finally located. Just where, it doesn't matter. It will suffice to say that he had a mint julep at his elbow and his feet cocked up at a comfortable angle, but for all that he was frowning instead of looking pleasant.

He brightened up a little, however, on being disturbed, and recognizing who his visitor was, and said: "If you were out at the office I guess you know what has driven me to drink."

"Yes," I said, "but I didn't know you needed driving to take a drink like that one before you."

At that he smiled and a part of his good humor came back, and after sampling his drink he said:

"Young man, I have just been getting an idea, and I am rather proud of myself to think that I have the faculty of getting some bright ideas out of difficulties. It is experience and difficulties that teach us what we know, anyway, and out of this mess going on in my office of repainting and putting it in shape I have got an idea that you fellows ought to have gotten hold of long ago and made a lot out of."

"Here is the idea: Why not push more clay products for interior decoration, especially in office buildings and public buildings of all kinds? It is simply like breaking up house-keeping for a man to have to get his office all painted over again. It means taking the furniture away from the walls and piling it up and covering it with old tarpaulins, and creating so much disorder and doing as much damage as moving, and you know that three moves are counted equal to one fire. For this reason many a man lets his office go and get dingy and disagreeable before he will go to the inconvenience of getting it painted."

"Now, suh, without going into the details of the misery involved in this house-cleaning and painting business, I want to point out to you some possibilities—point a path by which we may be saved. I have a friend with an elegant and commodious office who was wise enough when he built it to line the inner walls with white enameled brick. That is one office where they never have to paint. The janitor can go over the brick and wash them off, and they are just as bright as ever, and there is no tearing up and moving around."

"Yes, but Colonel," I replied, "some people don't like white walls, and object strenuously to the glare of white enamel. Consequently, what might appeal to one man here and there could not be put in general use."

"Don't you suppose, young man, that I have given thought to that? That is just the point I was getting to, suh, when you interrupted me. It ought to be possible and practical among your various clay products to furnish any color scheme that might be desired for interior decorating, and furnish it of material that would retain its color permanently, and not absorb dirt and have to be washed. I don't know much about the technical parts of clayworking, but I understand you have two kinds of products that will stand the test of time and not get dirty enough to need painting. And possibly three kinds. Anyway, there is your glazed and enameled ware, and then I have heard of what is termed fire-flashed product that has a soft finish and is said to stand without the need of paint. Therefore, among these you should be able to develop a wide range of colors and get soft tones as well as the glaring ones, so that a man wanting a soft green or even a tan color scheme for interior decorating can get it, and get it in a permanent form, so that once his office is finished with it he will be free

from this thing of moving out and tearing up generally every year or two and having the painters mess up his office.

"Why, suh," he said, warming up to his subject, "they are doing it in other products. Go into the modern hotels to-day and you will find onyx and marble in the corridors, and slabs of it covering the columns, and pilasters of it, and a world of this kind of stuff, and not only in hotels, but in bank buildings and other places. Stuff that has a natural tone and color, and never requires paint, and only needs to be cleaned off now and then, which can be done without disturbing the whole place. Occasionally you see some of it done in clay products; you see tiling here and there; you see it in bath rooms, and you can see it in corridor floors, and now they are putting it in porches as an improvement over the cement porch idea, and you are getting started quite nicely on it, but, Lord, man, you are only started. Think what it would mean if the whole country should take a notion to do the interior decorating of office buildings with tiling, enameled brick, and various other clay products. It would cost something more to do it, but it would be worth the price, and if you can stir up some enthusiasm, get the boys all interested, and get the architects in line, there is no telling how big a thing might be made of it."

"It does begin to sound big," I admitted, "but I really don't know how it would take, and don't feel competent to give an opinion on the possibilities either of the development or satisfaction of such an idea if it was developed."

"Well, suh, you can do this," the Colonel replied, as he again turned his attention toward the mint julep, "you can pass the idea long, suh; you can pass it along and see what it is worth."

OBITUARY.

Henry Livesey, founder and present head of the Livesey Brick Company, and citizen of Omaha, Neb., for more than half a century, died at his home in that city June 4. Mr. Livesey was born in England in 1834, and came to this country with his parents when but eight years old. In 1856 he founded the Livesey Brick Company, which he has operated continuously ever since. Mr. Livesey is survived by his wife and five children.

J. J. Hoblitzell, a pioneer in the fire brick industry of Pennsylvania, died at his home in Meyersdale, Pa., May 19. He was seventy-eight years old. In 1872 he organized the Savage Fire Brick Company, which was operated under his management until 1901. In commenting on his death a local paper says: "Few men were better known in this community, none more sincerely loved and revered, than J. J. Hoblitzell. Not only a business man, but a sincere Christian, a wise, prudent father, a reliable counselor, a steadfast friend, and one who shared with the poor—his death has filled the town with mourners."

Richard Murray, one of the leading brick manufacturers of the State, died at the family residence in Berlin, Conn., May 25. Mr. Murray had been in ill health for several years. After working for forty years at brickmaking, Richard Murray had risen from a boy at everyone's beck and call to the position of superintendent, and ultimately became a partner in the firm. The firm name of Peck & Murray soon gave way to that of Murray & Morrissey, and in 1892 Richard Murray became the sole owner of the business. He removed the plant to Berlin, where he established the Murray Brick Works, which is still in operation.

CARBIDE REFRACTORY PAINT.

Every clayworker should read the advertisement of the Carbide Paint Company of Portland, Ind., on page 880 of this issue, and investigate the merits of Carbide Paint as a fire-proof coating for kiln arches, etc., etc. A coating of Carbide Paint prevents the absorption of the heat by the furnace walls, and hence is a source of economy both in conserving the heat and lengthening the life of fire brick used in kilns, dryers or boiler furnaces. The Carbide Paint Company has a special offer for those who wish to test the efficiency of this material. It certainly is worth a trial.

BRICKS FROM ANT HILLS.

Excellent bricks are made, it is said, of the soil of ant hills in Central Africa. The natives tread it with water into a doughlike substance, which is shaped in rough wooden molds. It is then dried in the sun, and afterward baked in native kilns.

TRADE NEWS.

The Marion Steam Shovel Company, Marion, Ohio, whose ad appears on page 884, announce that they have added to their line of machinery an improved Drag Line Excavator, and those of our readers who are interested are requested to write them for an illustrated catalogue.

Chambers Brothers Company, Philadelphia, Pa., report a fairly satisfactory volume of business. Among recent orders booked by them is a complete machinery equipment for the new plant of the Diamond City Brick Company being erected at Wilkesbarre, Pa., and a brick plant of large capacity for George H. Baldwin, of Savannah, Ga.

Mr. James P. Williams, for several years manager of the Union plant of the Hydraulic Press Brick Company, St. Louis, Mo., is now identified with the C. W. Raymond Company, Dayton, Ohio, manufacturers of clayworking machinery. Mr. Williams will handle the middle district, which consists of Western Ohio, Indiana, Illinois, Eastern Missouri and Kentucky.

ANOTHER COLLAPSED CONCRETE BUILDING.

Among the building accidents reported last month was the collapse of a concrete store building at Corydon, Ky., along the latter part of May. It was a new, commodious store building, quite extensive for that town, and was erected throughout of concrete—concrete floors, concrete walls, and, it is said, an arched concrete roof. Anyway, it was concrete, and after the building had been put up and the time came for removing the false work, it went down. It seems that when the false work that supported the roof was removed the roof crashed down on to the upper floor, carrying it on down, and simply wrecked the entire building, the floors carrying the walls with them. It is said the concrete building was something of an experiment in that community, and it is hardly necessary to add that the experiment has proven costly, and that it will probably be a lesson that will be worth something to the community and to brick, steel and other building material.

BIRMINGHAM'S CLAY INDUSTRIES.

In a recent issue of the Birmingham News John W. Sibley, who doesn't need an introduction to the readers of THE CLAY-WORKER, tells about the clayworking industries as representing an important part of the home of manufacturing and natural resources of Birmingham. What he said to the editor and to the people of Birmingham through the means of that paper follows:

"We have a number of plants here manufacturing common brick, with a capital invested of \$250,000 and an annual capacity of 34,000,000 brick, valued at \$215,000. We have one face brick plant with capital invested of \$150,000, with a capacity of 12,000,000 brick per annum, valued at \$200,000. We have two fire brick concerns with capital invested of \$400,000, with combined capacity of 40,000,000 brick per annum, valued at \$800,000. We have three large paving brick plants with capital invested of \$250,000, with a combined capacity of 25,000,000 brick per annum, valued at \$350,000. We have a sewer pipe plant, capital invested of \$200,000, with capacity of 1,500 carloads per annum, valued at \$400,000. We have a fireproofing factory with capital invested of \$50,000, with capacity of 600 carloads per annum, valued at \$75,000. The total capital invested in clayworking industries in the district is \$1,300,000, with a combined output of 100,000,000 brick

per annum, and, together with the sewer pipe and fireproofing, makes a total product valued at over \$2,000,000.

"The clays and shales of the Birmingham district are unsurpassed anywhere in the country, and I predict that in the not far distant future we will have added to our present diversified clay manufacturing interests factories for the manufacture of architectural terra cotta and electric conduits and clay shingles.

"I am glad to say that in the main these industries are well patronized by our home people."

Editorially the paper comments on the fact, and calls attention to these industries being well patronized by the home trade. This speaks well not only for the clayworkers, but also for the home trade people of Birmingham.

DELAWARE CLAYWORKER CELEBRATES BIRTHDAY.

John P. Allmond, former mayor of Wilmington, celebrated his seventy-fifth birthday anniversary May 6, and during the afternoon he was tendered a pleasing reception by many friends and business associates at the office of the Delaware Terra Cotta Company, of which he has been president for many years.

The reception came a complete surprise to Mr. Allmond, and it had been arranged by his sons, W. Stewart and Dr. C. M. Allmond. He was at his office as usual, and when a large number of representative Wilmingtonians began to pour in upon him, he was surprised at first, but he soon learned of what was in store.

A repast had been provided and was served at the office, during which Mr. Allmond was given another surprise when presented with a gold Masonic watch charm, the gift of friends, and seventy-five carnations, one for each year of his life, by his grandchildren.

Altogether the reception was a pleasing one, and many took occasion to congratulate Mr. Allmond, who is unusually active for one of his age.

EXPERIENCE DISPROVES POPULAR BELIEF IN REGARD TO COST OF BUILDING.

That there is a belief in the minds of a great many people that brick construction costs from 40 to 50 per cent more than frame construction there can be no doubt. Experience and investigation, however, have shown this belief to be a fallacy. The large number of brick residences that have been built during the last year have done much to establish the fact that brick is really the best material for the economical builder to use.

An investigation of the costs of building materials with the aid of an architect or contractor will prove both interesting and instructive, especially when the brick construction is compared to the cost of frame construction. In frame construction labor is employed in seven different instances, namely: (1) The studding, which forms the frame of the building; (2) the sheathing; (3) the building paper; (4) the weather boarding; (5) the lathing; (6) the plastering, and (7) the painting, which requires three coats to get good results. In brick construction but two processes are necessary: (1) The brick work and (2) the plastering.

Carefully compiled statistics show that the actual cost of brick walls more than frame, varies from 15 to 40 per cent, depending largely on the price of the face brick selected. As the walls of any building cost only about 10 per cent of the total, brick construction would add only from 2 to 4 per cent to the total first cost of the building. As it is necessary to repaint a frame building every few years, it will readily be seen that brick construction, besides being the best, is the cheapest. A building constructed of brick is much easier heated than a frame one, and the saving in fuel is an item to be considered. Also, it must not be forgotten that with the faces and shades of brick now being manufactured it is possible to build a handsomer building of brick than from any other material.



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TWENTY-SEVENTH YEAR OF PUBLICATION

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JUNE, 1910.

No. 6.

CURRENT COMMENT.

That peace idea of Secretary Knox is a great thing, but it is doubtful about it having a peaceful march to victory in the present generation.

* * *

Some of the city building codes bear a certain relation to Chinese puzzles in that they are difficult to make out, and some parts of them are useless, except in that they furnish exercise for one's gray matter.

* * *

Now that it is demonstrated that a brick paved speedway is the greatest thing going for autos, the automobile people should lend a hand to promoting not only brick street paving, but also the paving of country roadways with brick.

* * *

Every time we can encourage the use of brick for a few blocks more of city paving or a few miles of roadway, it means the consumption of an enormous quantity of paving brick and a big thing to the industry generally. So, let us keep up work incessantly.

* * *

It ought to be possible to do some good work along the line of promoting the use of building brick by giving demonstrations and object lessons on the amount of insurance money that can be saved in an ordinary lifetime by having more fireproofing quality in building material.

* * *

We are really glad that the comet has switched its tail and gone on its way, because there are a whole lot of susceptible people that just would stop thinking about their business and everyday affairs to indulge in speculative theorizing and wondering about what it was going to do. We don't know much more about it now than we did before, but it is gone, and that's one consolation.

After a man has been bumped quite a lot with experience he no longer bubbles over with enthusiasm, but he is in better shape to apply what he has left where it will do the most good.

* * *

There is room for lots of development in terra cotta and pottery for decoration in structural work, and as work of this kind is finding favor with the architects to-day, the time is ripe to push it extensively.

* * *

Sometimes we wonder whether our congressmen actually have faith in the idea of a postal savings bank, or whether they are simply desirous of perpetrating some legislation that will meet with popular favor in the rural districts.

* * *

A bunch of common brick does not shine up much along side of some of the fancy and high-priced articles, but what it lacks in appearance it makes up in quantity, so that in the aggregate it's easily the most valuable of all our clay products.

* * *

It is better to waste some money buying machinery unwisely than to be backward about making improvement lest you do waste some, and the man that keeps up with his trade paper reading and studies catalogs well need not either waste money or be backward.

THOSE EDISON "POURED" HOUSES.

There has been ever so much boosting done in concrete circles and among the popular magazines about the solving of the house problem of the future by the wizard of inventors, Thomas A. Edison, and the greatest feature of all has been what is termed a "poured" house. A house made all in one piece, which it has been claimed can be put up for about \$1,200. Any man that knows of Edison and his accomplishments has much respect for him, for he is a man that has done much for the world and given us many important inventions, and it is for this very reason that any idea suggested by him receives more attention and is accepted without question, whereas the same idea advanced by anyone else would be analyzed closely at first. People are analyzing this house idea now, though, and are finding that there is a tune to the song. Accepting the statement without question that a "poured" house can be erected for a minimum price, it is said that the statement may be qualified by the fact that a set of molds for a house of this kind would cost primarily \$25,000, and to make any variety a man would need half a dozen different patterns, which would make the total cost of machinery equipment necessary to carry on work of this kind \$175,000. So, while this "poured" house idea may be an interesting experiment, it can also be made a very costly one, and for that reason there is not much likelihood of its being put into general practice.

GRAFT IN THE SALE OF CLAY MACHINERY.

It is quite apparent that this is an age of commercial reform; an era of moral awakening in business life, and the influence touches individual affairs as well as those political. The brick business is perhaps as free from graft as any of the important industries, for in the nature of things there is very little tendency toward crooked things in the clay business. It is to-day and has always been a homely, honest industry. But there are exceptions to all rules, and there are, it seems, phases of the clay business which need to be considered in this connection. Our attention is called to a form of graft in the purchasing of brick machinery by Messrs. Chisholm, Boyd & White, who write under date of June 11, saying that they are occasionally approached by factory superintendents and foremen who offer their influence in placing brick presses for

a consideration. Most of those who attempt this form of graft say plainly that they have no objection to the amount they are to receive being added to the selling price. This of itself proves them to be dishonest. They may not themselves regard such transaction in that light, but, analyzed fairly, such methods are plainly dishonest. The firm quoted say they know they have lost some sales by refusing to be a party to such transactions, and state that it is high time an effort be made to put a stop to graft of this sort. They propose to do what they can to prevent it by bringing to book those whom they find are guilty of the evil practice.

If all the machinery manufacturers and salesmen will take the same stand, the evil will be stopped in short order. The fact is that the salesman who gives a bribe under the guise of a commission is himself guilty of grafting, and when the amount paid is added to the selling price, it is a criminal transaction. If our machinery manufacturers will but look the situation square in the face and refuse to allow their salesmen to offer commissions or rebates to yard employes, taking the high ground that to do so is dishonest, the evil will soon cease to exist, and the word graft will find little or no application to the clay business. If certain employes who, once having tasted of this dishonest fruit, have acquired a taste for it that dulls their sense of decency, then expose them. Let their employers and fellow workers know of their evil ways, and their disgrace will end their grafting and point a moral so plain that those who run may read and heed.

THE FREIGHT RATE MIX-UP.

Once in a while we are inclined to be a bit sorry for the railroads, because we realize that legislators and other antagonizers sometimes go to extremes, and if left to continue unchecked would do untold damage to industries. However, it generally happens that about the time we are worked into a warm state of sympathy for the railroads, they themselves turn around and do something that causes us to lose patience and feel rather disgusted. The trouble with railroads is the same as the trouble with their antagonizers. They go to ridiculous extremes, and in so doing furnish the excuse for the other extreme of antagonism.

At the present moment the whole country is aware of efforts that have been made to advance freight rates in a sort of blanket form, which has been checked first by injunction and later by a conference at the White House. There has been a sort of mutual agreement to wait a while, until Congress gets through with its railway bill, when it is hoped we can work together more harmoniously. We feel that the president is to be heartily commended for his attitude in this matter, and we have faith that if he is properly supported, and his efforts received in the right spirit by the railroads, he will be able to point out a fairly satisfactory solution of the whole wrangle that will be good for both the people and the railroads.

CAMPAIGNS OF EDUCATION THAT DO NOT EDUCATE.

The latest advice we have is that the railroads will carry on a campaign of education to show the public the necessity for an increase in freight rates. These are the things that rub our sympathy off the slate, these campaigns of education, because they are so flagrantly one-sided and overdrawn as to statistics and argument generally as to make them an eyesore to a man who loves facts and figures and to pursue logical arguments. As a bit of advice to railroads we might say that if they will just use the blue pencil on their statistical enthusiasm and be moderate in their arguments, they will likely gain more friends and come nearer to getting what they want. Probably not what they want, but what they deserve. Just so long, however, as they exaggerate on one side, others will go to the other extreme, and the warfare will be kept on. Our own little bit of modest advice to both the railroads and to the other side is, consult with and listen to the president and

his counsel. We believe he has in mind to deal fairly with everyone. Also, we want to say to the railroads that they are not the only ones that lost a share of their business through the recent depression. Others suffered just the same, and the road magnates should bear their burden like men, and not make the industrial depression an excuse for them hanging out a sign of distress and putting forth a plea that smacks too much like a beggar on the street corner during the noon hour. Such pleas would "listen better" if we could forget that a large part of their capital was water. It's the "water" that makes it difficult for them to make ends meet.

BUILDING ACTIVE.

While in many industrial lines there is evidence of a little drag during the first half of June, some unaccountable slowing down that it is difficult to understand, this has not reached and does not affect building. Building operations are going forward very nicely, and in many cities it is rather difficult to secure enough help. Indeed, many building contractors are more concerned about getting help than they are about getting jobs, and they have enough work to do that they are not competing so closely as they once were. Therefore, the trade in structural material is better comparatively than in almost any other industrial line. Also, there seems to be a fair amount of paving in the various cities. Consequently, business should be good with the brick manufacturers. There is always room for pushing brick products in the building of homes, and this year there are excellent opportunities to push terra cotta and tiling and various kinds of pottery work for ornamentation in the larger structures. There is a disposition to use tiling in porch flooring as an improvement on the concrete porch idea, and there is a wonderful spread in the use of tiling in bath room work, because there are lots more bath rooms being put in these days.

It is in the paving end of the business, however, that there is room for the greatest enlargement. It only takes a few blocks of city paving to call for a whole lot of brick. Consequently, a small paving contract may easily involve more brick than a large building. So every victory won over competitive paving material means quite a big thing to the paving brick industry, and it is doubtful if there was ever a more opportune time to demonstrate and push brick aggressively than this year. People want to get away from stone, because it is noisy and expensive, and many cities are disgusted with asphalt because of its lack of stability and durability, to say nothing of other objectionable qualities, and the competition is almost getting down to that of brick and wood paving. So it is time for the brick men to get in and keep in after municipalities that are disgusted with asphalt, and push brick. This year should prove to be the greatest year in the paving brick industry as well as in building brick. We predict that it will be if the work is pushed energetically. So let us push altogether, and then tally up at the end of the year and see.

THE RESORT TO THE SCRAP-HEAP.

At the corner of Wall and Nassau streets stands a sixteen-story, steel-frame building, measuring three hundred feet from sidewalk to tower. It was built in 1896 and is well constructed, capable of enduring indefinitely; but they are tearing it down. With a new building, rentals will be so increased that they can afford to throw the old one away. This is a typical American proceeding, and to it a considerable part of our industrial efficiency is due. The readiness with which our engineers toss buildings, steel rails, locomotives and machinery generally into the scrap-heap amazes Europeans, and accounts, in part, for our industrial efficiency. This resort to the scrap-heap requires courage. In the old stuff millions of dollars have been invested. While it isn't the best, one could get along with it for years. To write off the investment, throw the old stuff away and build new, takes nerve. Yet, on the whole, it pays.

Individually a good many of us lack the nerve to "scrap" our failures and half-successes. The old undertaking isn't

panning out very well. We see that it does not develop our best efficiency. We are dissatisfied with it, but in it we have invested much effort, much hope and years of time. We hate to write off the investment, toss the old stuff bodily into the scrap-heap and build new; but very likely it would pay.—Saturday Evening Post.

TRADE LITERATURE.

THE GOOD ROADS MACHINERY COMPANY, Kennett Square, Pa., has issued a little leaflet illustrating and describing their road drags, which, like all of their road building machinery, have individual characteristics that make them especially effective. They solicit correspondence relative to these road drags, or any equipment desired for the building and maintaining of country highways.

HARRINGTON & KING PERFORATING COMPANY, Chicago, Ill., has favored us with a desk blotter of excellent quality, and which illustrates in an attractive manner the various forms of perforated metals which they manufacture. As may be seen by turning to their ad on page 797, they make a specialty of perforated steel for screens. Clayworkers who want the best grade and most durable screens are requested to communicate with them.

THOMAS MOULDING COMPANY, Chicago, Ill., who are extensive manufacturers and dealers in face brick, have inaugurated a publicity campaign of their own which will prove helpful to the trade in general, as will any such campaign which brings to the attention of prospective builders the excellence of brick when used skillfully for decorative purposes. They have adopted "Textur" brick as a trade mark, and have issued a booklet illustrating and describing what they mean by texture in brick work. The book is daintily illustrated, and if it once reaches the eye of an intended home builder it will certainly have an abiding influence, for it tells the story of Textur brick in a most impressive manner. Copy of the book can be had for the asking.

"FOUNDRY HEATING SYSTEMS" is the title of a pamphlet recently published by The Green Fuel Economizer Company, of Matteawan, N. Y. This contains detailed descriptions of two novel installations recently put in by this company. In one of these installations, a foundry of 515,000 cubic feet capacity and having walls made up entirely of glass, was successfully heated by a small four-section Positivflo heater. The pamphlet also describes a novel arrangement of ducts whereby the heat is supplied just where needed by the workmen, at the same time furnishing them with fresh air, and forcing the smoke and gases out of the building through the skylight. By using the right number of heater sections, and regulating the volume of air delivered, it is also possible to maintain the foundry at such a temperature that cores and molds will be prevented from freezing, no matter how severe the weather conditions. This pamphlet will be sent upon application.

THE AMERICAN BLOWER COMPANY OF DETROIT, MICH., has recently published several very attractive pamphlets setting forth the advantages of their high-grade blowers and ventilators. One of these is a handsome booklet styled "Blower Equipment for the Modern Foundry." This embodies a treatise on foundry heating and ventilating by Mr. F. R. Still, a section being devoted to the driving of cupola blowers by direct connected electric motors. An interesting comparison of the generating of electric current by isolated electric light and power plants with the purchase of current from central stations is worked out, giving just the information the average manufacturer needs to consider. This booklet was published principally for distribution at the foundrymen's convention at Detroit, June 6 to 10. Another attractive bit of advertising literature was published during the last month in the form of a bulletin entitled "Bulletin No. 283," which gives detailed information relative to the "Sirocco" turbine type fan. Upon request the books and bulletin will be mailed gratis to any interested party. Address the American Blower Company, Detroit, Mich.

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 877.]

FOR SALE, WANTED, ETC.

FOR SALE—Martin steam pipe rack dryer, with steel pallets for same. Capacity, 20,000. Now in use.
ZERRENNER BROS.,
6 5 c New London, Wis.

FOR SALE.
Brick and tile plant. Capacity, 35,000 per day. Now running, but must sell to settle estate.
SMITH BROS.,
61cm Box 11, Jasper, Mich.

WANTED—A good foreman in a drain tile plant. Must be hustler. Work year round, providing you are competent. Plant located four blocks from town of 2,000. State salary, etc. Must be sober. Married man preferred. Address
AMERICAN BRICK AND TILE CO.,
61cm Morenci, Mich

For Sale, Wanted, Etc., Ads Continued on pages 867-869.

Gas Fired Tunnel Dryers

We have designed for a number of our customers in the natural gas districts of Pennsylvania, West Virginia, Kansas and Oklahoma, tunnel dryers for the use of natural gas for heating. In sections where natural gas is low in cost it makes a very desirable fuel for this work. Its regular pressure enables the operator to maintain an absolutely uniform temperature with but slight attention from the operator.

The construction of these dryers follows very closely the lines of our standard waste heat dryers, and includes all of their tried and approved features for regulation of the circulation, for simplicity of operation, and for economy and durability of construction. Positive control of the circulation is obtained by means of a disc fan connected with the main vent flue. The tunnel openings to the main vent flue are located in the floor between the tracks near the inlet end of each tunnel, and are covered with sliding dampers. Each tunnel may be disconnected from the heating and circulating system whenever not in use.

The gas burners or heaters are installed in the main heat duct, there being a separate heater for each branch duct. The warmed air is admitted to the tunnels through a series of openings between the tracks underneath the dry cars at the discharge end of the tunnels. This brings the dry warm air in



Sapulpa Brick Co. Plant and Gas Fired Dryer

direct contact with the driest brick in the tunnel, and as the air moves to the vent duct it becomes saturated as it approaches the green brick that are last admitted to the tunnel.

The burners are readily accessible. The construction throughout is fireproof. The design is simple. The materials are of the best. A point worthy of consideration in some sections is that the design is such as to lend itself to the transforming of the dryer from a gas heated to a waste heat system in event the gas supply should at any time fail, or to a combination of waste heat and gas fired, should such construction be desired.

The users of our Gas Fired Dryers are pleased with them, pronouncing them satisfactory and economical.

The Chanute Brick and Tile Co. says: "Your gas fired dryer equipment takes care of 80,000 brick per day, and does not use anywhere near as much gas as the old perforated gas pipe. We do not know of a better dryer, and are well pleased with it."

The American Vitified Brick Co. says: "We have found that your gas fired dryer equipment is very satisfactory, and we can heartily recommend it. We are drying 85,000 brick daily."

Other testimonials will be given on application. All questions relative to this system will be answered.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



American Steam Pipe Rack Dryer

(Patented)

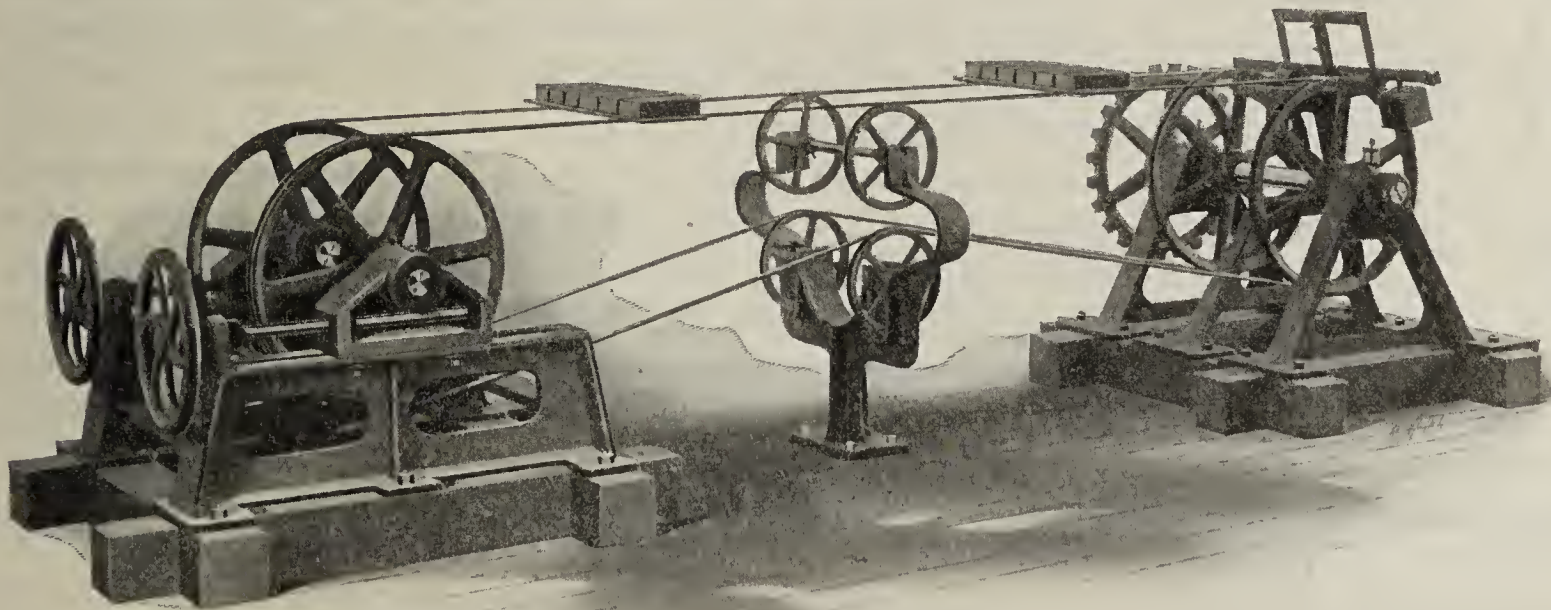
WE have just received letters patent on a number of new features in our improved Steam Pipe Rack Dryer which place it far in advance of all dryers of this class. With these additional improvements the problem of economical and thorough drying has been simplified. The American Steam Pipe Rack Dryer is making good wherever used and will be of interest to you. It costs you nothing to investigate this matter and it may be costing you a great deal not to investigate it. It is an economy in time, fuel, space and maintenance. The improved Cable conveying system which we install in connection with our Steam Pipe Rack Dryer is a feature which means much in cheaper handling of the brick from the brick-making machine to the dryer and from the dryer to the kiln. The pallets when emptied are returned by the conveyor to the brick machine.



Interior View of Steam Pipe Rack Dryer

This system cuts out all trucking from the machine to the dry racks and all wheeling from the racks to the kilns. The brick being handled on pallets at all times which insures a much better quality of brick because handling each brick by hand necessarily caused more or less spoilage and marred the brick. You are invited to investigate the American Steam Pipe Rack Dryer. It's worth your time.

We build every machine and appliance necessary for making every class of Clay Products by all processes. We are the largest manufacturers of Clayworking Machinery in the world and can therefore maintain an organization which includes the very best experts in every line of Clay Manufacturing. This knowledge is not only back of our machinery and equipment but is at your disposal for the solution of any of your clay problems.



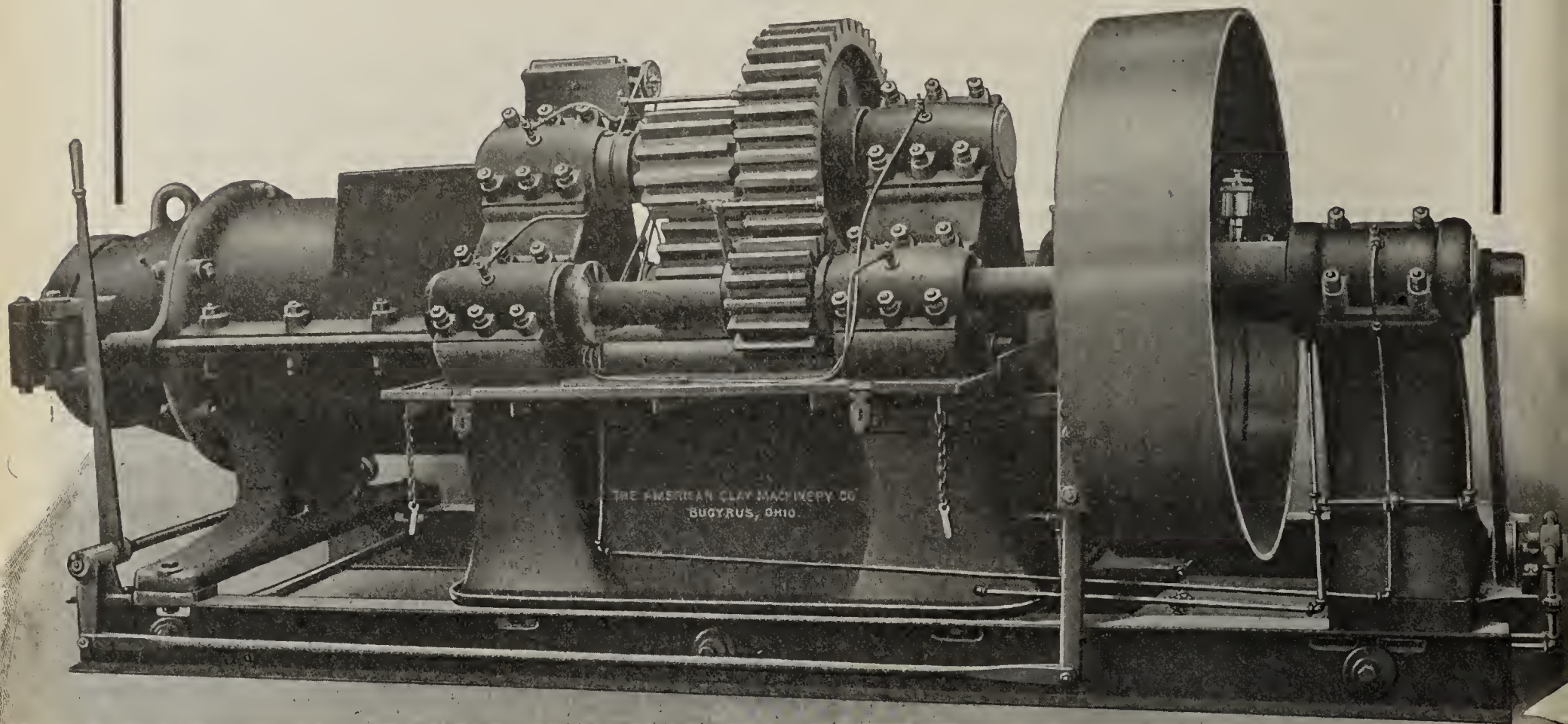
Units of Cable Conveyor

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



Be sure and mention THE CLAY-WORKER in answering ads.

Self-Oiling Auger Brick Machine



When we designed and built the first No. 65 Auger Machine we felt confident it would be a most dependable machine; one with a capacity beyond anything else, and a quality able to back such a capacity. The experience of all users of the No. 65 amply proves that our expectations were well founded and our confidence not misplaced. It is a machine you can depend upon.

**ALWAYS
THE
BEST
AUGER
BRICK
MA-
CHINES**

The oiling system consists of a force feed pump driven by either belt or ratchet. Each bearing is connected by a pipe leading from the force pump, and each bearing has its individual sight feed so that any one can see that each bearing is receiving the proper amount of oil. A catch pan which is made a part of the base of the auger machine receives all drip, and the oil thus collected is saved. While this is a source of oil economy, it is far more economical in saving bearings and gearings.

The illustration shows our No. 65 Auger Brick Machine and our improved central oiling device for thrust bearings. By this improvement thrusts are oiled from the center instead of trying to get the oil to run from the periphery of the thrust plates to the center. The gravitation on a revolving plate or disc is from the center and not toward it, consequently by the old system there was no assurance thrust plates received the proper amount of oil. Our new method of applying the oil by force feed to the center of the plates insures plenty of oil and freedom from repairs.

This Force Feed Sight Oiling System can be applied to any of our clayworking machinery. We build every machine and appliance needed for making clay products by all processes. Correspondence solicited.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



The Users Talk About It

We are going to tell you all about this screen in five words. It is

**“Built Right
and
Runs Right”**

If you are interested in screens and want a description of this centrifugal Screen Success, we will mail you a circular about it which tells the whole story, but in this page we are going to allow the men who are using this screen to tell you how they looked for repair bills, how they searched for flaws, how they expected troubles.

They have been “through the mill” just listen to them talk about it.

“Our Centrifugal Screen screens the clay very fast. The men who operate the Screen are pleased with results.”—Columbus Plate Glass Co., Blairsville, Pa

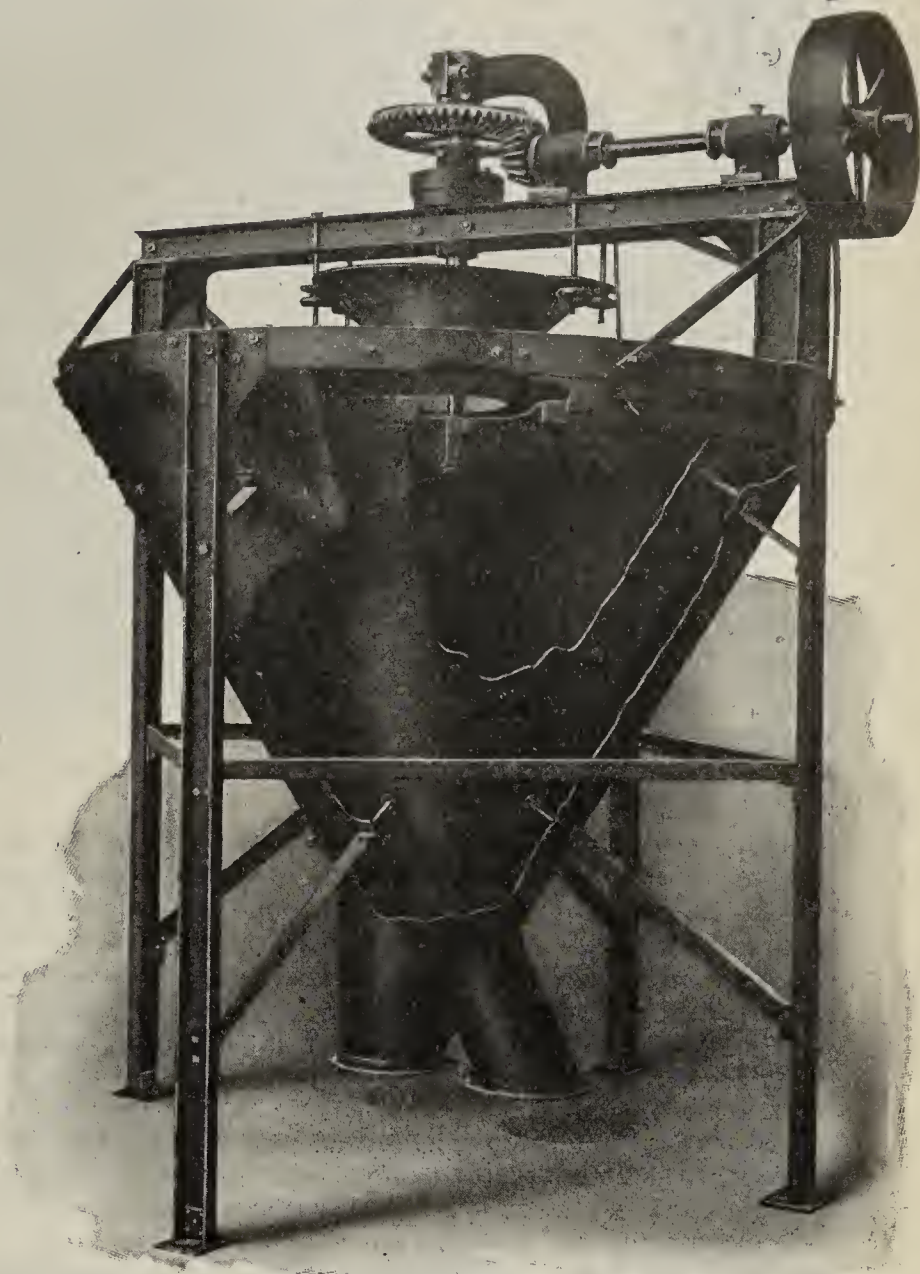
“The Centrifugal Screen has certainly surpassed our expectations. We have run the Screen 60 days without a cent’s worth of repairs. We believe it will run indefinitely without repairs.”—Michigan Vitrified Brick Co., Bay City, Mich.

“We have two of your Centrifugal Screens. One has more than paid for itself in labor saved. It is handling material for 100,000 brick per day. We shall use these Screens exclusively in all our plants in the future.”—Coffeyville Vitrified Brick Co., Coffeyville, Kan.

The American Clay Machinery Co.,

We build every machine and appliance required for manufacturing every kind of Clay Products by any process. Fifty years of experience and attention to the need of the Clay-workers has built up a trade and an organization which is a credit to the Clayworking Industry. You are invited to use this organization and experience.

BUCYRUS, OHIO.



Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



EXPECTATIONS OF WISCONSIN brick dealers and manufacturers for a busy season are being fulfilled. The amount of building which is going on throughout the state is without precedent and as the season advances the volume of work seems to advance with it. The number of school buildings, both private and public, hospitals, dormitories and manufacturing buildings which are being erected is far above that of last year, while the smaller buildings hold their own. This increase in

the number of large structures is proving a strain upon the small local brick plants, making it necessary for material to be imported.

In Milwaukee the rate of increase has not kept pace with that of the remainder of the state, but business is very good, nevertheless. The local brick manufacturers, while running their plants full capacity, are able to supply only 50 per cent of the demand. The other 50 per cent is brought into the city from Chicago and other points by the large jobbers. Building contractors report much activity in their line. The two-family flat is at present very popular among the builders, many of whom are using solid brick walls, while others desire only the veneered wall. Several large manufacturing buildings are to be put up during the summer and much brick will be used in their construction.

Plans are being made in many Wisconsin cities for a large amount of street paving, which is to be laid this summer. While not all of this work will be done with brick, a large part of it will be. The streets in the business districts are the ones ordinarily paved in the smaller cities and brick is the material generally chosen.

The Bauman Brick Company, of Racine, has commenced operations for the season. Owing to the shortage in the Racine brick supply the plant will be run to capacity.

A meeting of the stockholders of the Whitewater Tile and Pressed Brick Manufacturing Company was held recently, at which time a proposition from Milwaukee and Janesville parties, for placing the plant in operation, was considered. It is expected that a deal will be made and the plant will be working in a short time.

Mrs. Catherine Stiel, wife of Anton Stiel, founder and head of the Jefferson Brick and Tile Company, of Jefferson, died recently at the family home in Jefferson. Besides her husband, she is survived by three children.

Among the Milwaukee south side concerns which have increased their capital stock \$1,199,000 during the first quarter of the year, is the Standard Brick Company. To increase its facilities and enable it to better handle its rapidly growing business, this concern has increased its capital stock \$80,000.

The Stevens Point Brick Manufacturing and Construction Company is preparing for a busy season. The output, it is estimated, will pass the 1,000,000 mark and thirty men will be employed in the yards.

During the month of April a scarcity of brick was reported at Racine. At one time it was estimated that not more than 75,000 new brick could be obtained in the city. Extensive building operations of the past year are said to be the cause of the small supply on hand and to carry on the spring building operations it was necessary to import large quantities of brick. At present, however, the local plants are in operation and the shortage will promptly be taken care of.

Negotiations are being carried on by the Washburn Brick Company, of Washburn, with St. Paul parties for the sale of its plant.

Harry Sprink, president and treasurer of the Tramway Brick Company, of Menomonie, was killed recently in an automobile accident. Mr. Sprink, his wife and some friends were returning from an afternoon drive when suddenly one of the rear wheels of the car flew off, causing the machine to swerve into the side of a bridge and turn turtle. Mr.

Sprink was found pinned beneath the steering wheel and died shortly after.

Employing about thirty-five hands, the Langenberg Brick Manufacturing Company, of Stevens Point, has commenced operations for the season. Indications point toward a busy season and plans are being made to increase the working force as the season advances.

The Janesville Red Brick Company has opened its plant for the season. With the orders now on hand the company will be busy for eight months, the plant having a capacity of 30,000 bricks a day.

The Hilker Brick Company, of Racine, has recently added a large brick machine to its equipment. The power plant has also been increased by the addition of a new gas engine.

Fire destroyed the roof of one of the large kilns of the Wisconsin Red Pressed Brick Company's plant at Menomonie recently. The fire was caused by an overheated kiln.

The action of the Superior, Wis., city council in choosing brick for the material to be used on the Belknap pavement has met with strong opposition on the part of many residents. The contract has already been awarded to Ed Johnson, of Superior. The principle objection made to brick by the people is that it is noisy and on this account they wish to have creosoted block substituted. The council has refused to reconsider the matter and it is likely that it will be taken to the courts.

The Barron Red Pressed Brick Company, of Barron, Wis., has commenced operations for the season. Twenty-nine thousand brick were turned out on the first day and a successful season seems assured. The officers of the company are: President, G. A. Keorner; secretary-treasurer, K. E. Thompson; manager, W. J. Gillette.

The Grand Rapids Brick Company, of Grand Rapids, Wis., started up its plant recently. A crew of twenty-nine men was on hand on the opening day and the plant will run to capacity during the remainder of the season.

A number of officials of the cities of Burlington and East Troy, Wis., made a pavement inspection tour of several cities of the northern and central part of the state recently. They visited Fond du Lac, Oshkosh, Neenah, Menasha and Appleton. Brick, it was concluded, is the most substantial pavement used in any of these cities and it is probable that Burlington and East Troy will use considerable of it during the summer.

The city of Jefferson, Wis., has decided to extend the pavements on several of its main streets. Brick will be used in these extensions, which will be about one-half mile in length.

The Burlington Brick and Tile Company has commenced the season's run. During the winter months the plant is kept in operation for the manufacture of tile, but during the warm summer months brick is the chief product.

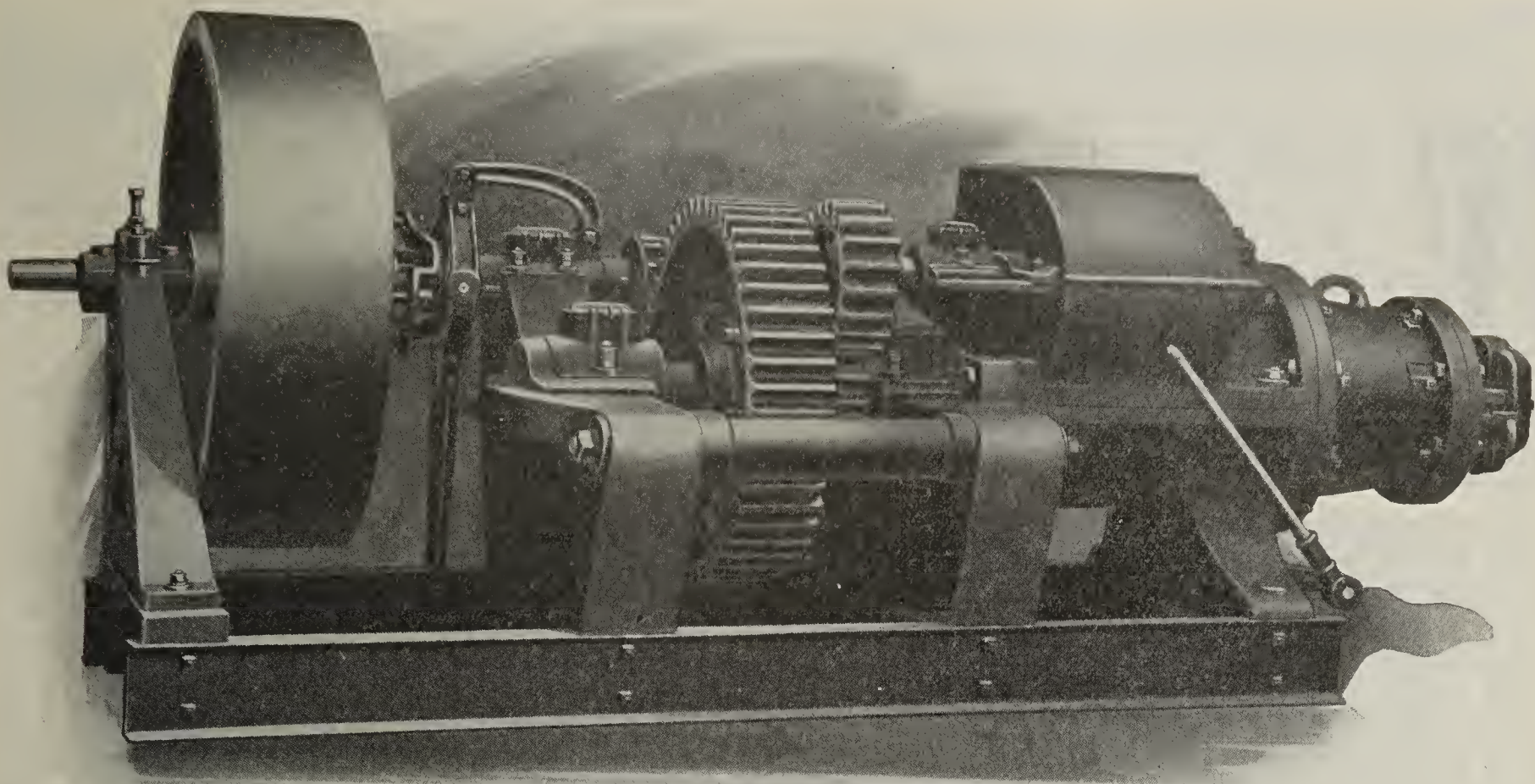
The Hydraulic Brick Company, of Menomonie, Wis., has commenced the summer operation in its Plant No. 4, employing between forty and fifty men. George Sheritan has been appointed foreman.

At a recent meeting of the streets and alleys committee of the Milwaukee city council, action was taken that will practically close the city to asphalt pavement builders. A plan is now on foot to engage an outside expert to prepare a plan for the systematic laying of pavements in Milwaukee.

Mayor Seidel addressed the committee, giving a general talk on pavements and the manner in which they have been laid heretofore. He said it would cost \$26,800,000 at prevailing prices to pave 500 miles of streets in Milwaukee. There being no denials of the fact that public highways must be prepared and maintained for public travel, he suggested that the proposition is a large one.

At the next meeting of the common council, Alderman Corcoran will introduce a resolution providing for retaining Prof. F. O. Hotchkiss, an expert in the employ of the State Highway Commission, to come to Milwaukee to make an investigation and report upon a plan for the systematic laying of pavements on Milwaukee streets. When this plan was made known to Mayor Seidel, he heartily approved of it, saying that the time for doing street work in a haphazard way, in the way it has been done in patch-work style in Milwaukee for years, was passed.

A. BADGER.

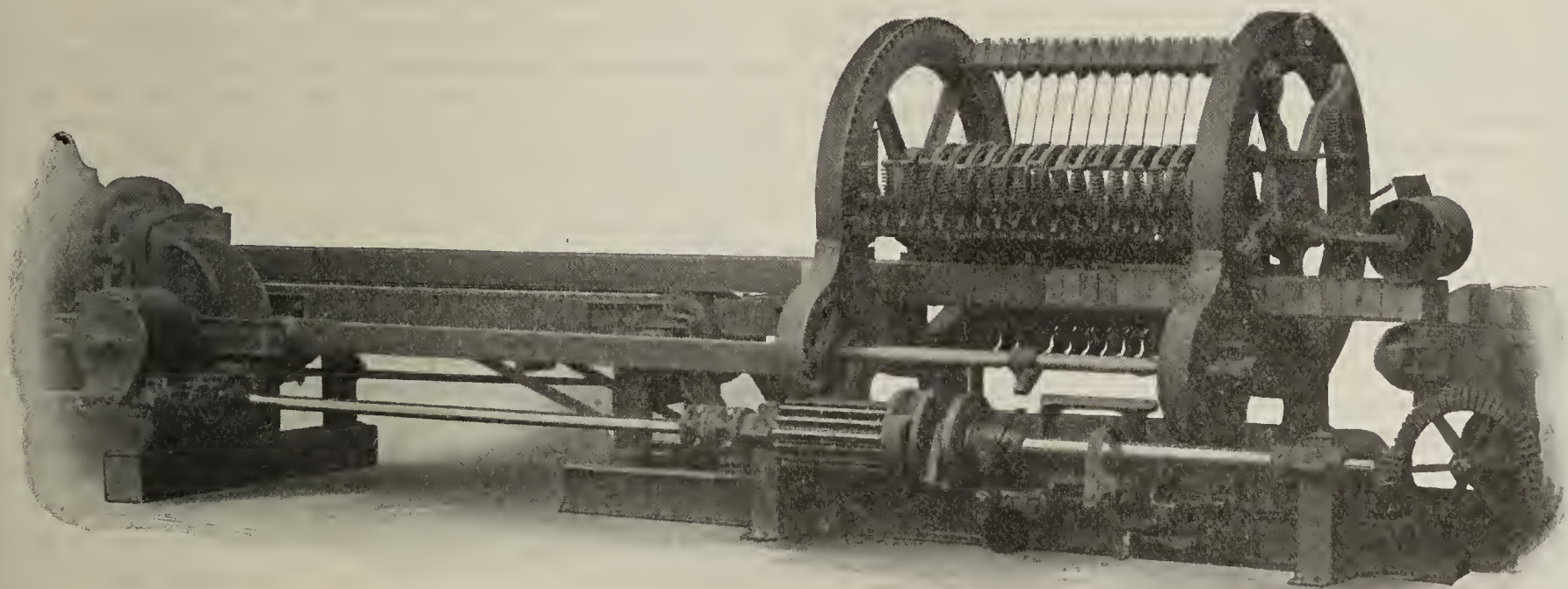


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 904-907.

Written for THE CLAY-WORKER.

THE TWIN CITIES AND THE NORTHWEST.



IS RATHER DIFFICULT to realize that the building season is running so actively, when there is such an apparent lack of confusion and rush to the season. Notwithstanding, the figures show that building permits are running well ahead of a year ago, and last year was a big year at that. There is work for all, and contractors generally have all that they care to do. This is the case to such an extent that bids upon new work are not very numerous, and some very good sized jobs are being figured with less than half a dozen bidding upon them. In poorer seasons there would be twice that number seeking the work.

Another feature of the season is the fact that brick is showing a freer demand. The demand has been such that the uncertain spring has left a number of points in the Northwest close to complete exhaustion of stocks at the time when the new kilns were being opened. Some places were close to exhaustion, and contemplated shipping in brick from other points to serve the demand until their local yards could complete their early kilns. The month of May was a poor one for the brick business, as there were six frosts at different times during the month—some of them sharp enough to do considerable damage. A number of yards in the Northwest which started operations early suffered the loss of a number of brick which were under way at the time the frost occurred.

With a continuance of the propaganda for publicity on the worth of brick, there is every reason to anticipate a continued good and better demand for brick through the Northwest. Already the interest in concrete, either concrete blocks or reinforced concrete, is waning. People are tired of its appearance either way. Reinforced concrete has been carried along on the appearance of the walls of brick which are used in almost every instance, but the number of structures which are being erected with concrete showing are few indeed. Where the concrete is covered up thoroughly, as in most reinforced concrete work, the feeling is not so pronounced. But brick are in stronger and better demand. There is a greater demand for all kinds of brick this season. Pressed and ornamental brick have been in fairly good demand right along, but the demand is well maintained. In common brick there is a steady improvement, although it is not as rapid as could be desired. The publicity and the improved alertness which are being shown by the brick fraternity are having their effect, and there are more brick dwellings and brick buildings of different kinds being erected.

One thing which is a serious drawback to the brick propaganda is the scarcity of expert bricklayers and the proportionately high wages which they command. Were it not for this argument the concrete block and reinforced concrete argument would lose most of its force. But whenever a brick structure is proposed, it is likely to be followed by a reference to the wages which the workmen demand, and the cheaper cost of concrete.

A brick plant near Sioux City, Iowa, recently offered free broken bricks for paving and repairing roads leading to the city. The suggestion is one which might well be copied elsewhere, since it offers a use for the refuse, and serves a good purpose which will benefit all concerned.

The proposed increase in rates on various commodities between Chicago and the West carries an increase in the rate on brick of 16 per cent. The increases have been halted by injunction, and there will be an investigation into the case. Building material dealers resent the suggestion of a general advance by the railroads, and feel that they are entitled to better service at the same rates rather than a continuation of the old service at higher rates.

A co-operative scheme has been suggested in St. Paul for

the erection of a skyscraper, wherein all hands will receive shares in the company in payment for their work. The general contractor, the sub-contractors, the material men and all others are expected to share on this basis. The proposition does not seem to have made much progress as yet, and it will be interesting to observe if it ever does materialize.

The Twin City Tile and Marble Co. has recently engaged in business in Minneapolis, with offices at 319½ South Sixth street. They handle encaustic and ceramic mosaic tiles, glazed and unglazed, slate blackboards, and other goods. F. Armstrong is president, J. Taylor, manager, and A. Verlo is treasurer.

Minneapolis building permits for May show a healthy gain over the year before, being \$1,836,190 for the past month, against \$1,533,965 for May of a year ago. St. Paul had big months both years, and breaks about even, with \$1,263,048 this last month, and \$1,324,287 for May of last year.

The Dayton Dry Goods Co., a prominent department store firm of Minneapolis, has just completed a lease for the remainder of the frontage from the present building to the corner of Eighth street, about 150 feet. The company will build a twelve-story extension to the corner of Eighth street, giving a full block of store frontage on Nicollet avenue, the city's leading retail street. The building will be of pressed brick and plate glass fronts, and will cost in the vicinity of \$700,000.

R. J. Cheney & Co., of Minneapolis, received the general contract for the erection of the warehouse for the W. S. Nott Company, Minneapolis, wholesale belting, rubber goods, fire department supplies, etc. The building will be located at Third street and Second avenue North, in the wholesale district, and will be six stories high, brick walls and terra cotta trimmings.

Alban & Fisher, architects, St. Paul, have prepared plans for a joint business block to be erected at Brainerd, Minn., by George Le Barre, R. R. Wise and others, to cost about \$100,000. It will be of brick construction, four stories, 125x140 feet in size.

The Loose-Wiles Biscuit Co., of Minneapolis, has had work started for its new warehouse at Washington and Seventh avenues North, in Minneapolis. The building will be seven stories high, 147x110 feet, with brick walls.

Libby & Nelson, of Minneapolis, have started work for several buildings for the Northern Pacific Railway in Northeast Minneapolis, to cost about \$125,000. They will all be of brick, and will include a brick roundhouse, brick storehouse, brick engine room, brick machine shop, fan room and office building, and other structures.

Gordon & Ferguson, wholesale furriers and manufacturers of gloves, hats, etc., St. Paul, contemplate the erection of a new factory building to cover a block at Third, Fourth, Market and Washington streets, to cost about \$400,000.

The Minneapolis Union Station is to be replaced by a new structure, according to the announcement of James J. Hill, head of the company which controls the depot. The new building will be patterned somewhat after the Baltimore & Ohio depot at Baltimore. Work may be started in the fall, but will be started by next spring at the latest.

The B. P. O. E. of Minneapolis expect to start work in the fall on the erection of a handsome club building, to cost about \$200,000, the completion to be some time next season.

The Leonard Construction Co., of Chicago, has the general contract to erect an addition to the wholesale implement warehouse of the Deere & Webber Co., at Washington and Eighth avenues North, in Minneapolis, to cost \$200,000. The addition will be 132x165 feet in size, gray pressed brick walls, modern in every way.

The Minneapolis Transfer & Storage Co. is about to start work for the erection of a storage warehouse at Twenty-ninth street and Hennepin avenue. The building will be of fire-proof construction, and will cost about \$100,000. Downs & Eads are the architects.

T. WIN.



Barrett's PAVING PITCH



Granite Blocks on Broadway, at Leonard St., New York. Filled With Barrett's Paving Pitch.

Why the Metropolitan Street Railway Co. Prefers Pitch Filler

The street railways of New York City are required to bear the expense of paving between and adjoining their tracks, and accordingly the Metropolitan Street Railway Co., which controls most of the surface lines in Manhattan, lays and controls more pavement than some cities. Accordingly, their testimony regarding their experience with Paving Pitch for filling the joints of block paving is highly valuable. Mr. W. T. Dougan, Engineer of Maintenance of Way in this Company, writes on March 17th, 1910, as follows:

"We have used pitch extensively since 1891. At times, thinking that the price charged for this material was too high, or that something else might give better results, we have tried other material, but in each instance have gone back to Paving Pitch as being the most economical. From our point of view cement grout cannot be considered because of the length of time that it requires to set, and also because of the difficulty in removing the blocks and the loss of practically each block removed when it is necessary to repair our track structure."

We have a booklet giving full particulars about Barrett's Paving Pitch and the experience of many engineers and municipal authorities with same. We will send it free on request to nearest office.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

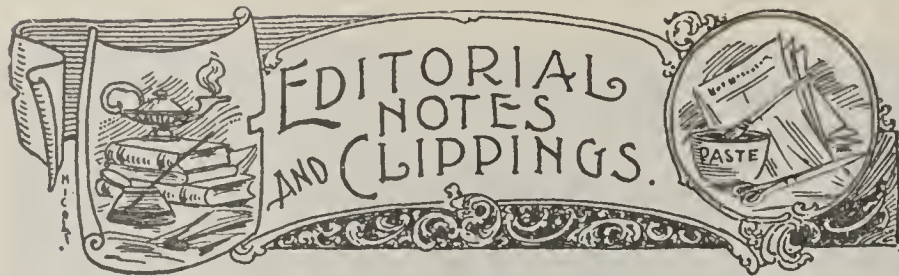
Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
London, England



J. E. Glasgow, of Peru, Neb., contemplates starting a brick plant at Havre, Mont.

There is an excellent opening, it is said, at Libby, Mont., for a brick yard.

V. L. Chamberlain and Ed Nelson will start a brick plant at Fruita, Colo., where they have located a good clay deposit.

The Finzer Brothers Clay Company has been organized at Shanesville, Ohio, with \$10,000 capital stock. Charles S. Finzer is at the head of the concern.

Nathaniel Lobb has equipped his brickmaking plant at Munising, Mich., with a steam dryer, which will enable him to operate his plant three months longer than heretofore.

Will Goodman has filed suit against the Bessemer Fire Brick Company, Birmingham, Ala., for \$10,000 damages for alleged personal injuries sustained while in the employ of the company.

The Drainage Brick Company, of Chicago, Ill., has been incorporated to manufacture and deal in brick and building materials. Herman Lengfeld, John W. Atkinson and John J. McLaughlin are the incorporators.

The Barr Clay Company's plant at Streator, Ill., which was closed down for ten days, owing to shortage of coal, is again operating full time, despite the fact that the company is obliged to pay from 60 cents to \$1 more per ton for coal than formerly.

A deal has been closed by which the Oakland Brick Company plant at Oakland, Neb., became the property of the Nelson Real Estate Company, of Minneapolis, Minn. The Nelsons are manufacturers of brick, and they announce that they will enlarge the present plant to a 200,000 per day capacity. They will also enter upon the manufacture of tile.

Articles of incorporation have been filed by the Trenton Fire Brick Manufacturing Company. The concern is incorporated for \$100,000, with 1,000 shares at \$100 a share. Joseph B. Hottell, Elwood W. Moore, Jr., and Arthur W. Belting are interested. The local office of the concern is at 147 East State street, and the agent is Elwood W. Moore, Jr. The company will manufacture fire brick.

The plant of the Niles Pottery Company, Niles, Ohio, which has been in the hands of a receiver for two years, has been purchased by W. H. Tritt. Many improvements will be made in the plant, which will be placed in operation in a short time. Mr. Tritt has had thirty-one years' experience in the pottery business, and has plenty of capital at his disposal to make the plant up-to-date in every particular.

A new company recently organized and which has established a plant at Evansville, Ind., is the Evansville Brick Company, of which F. Jaeger is president, Sherman Grant vice-president and N. Crossland secretary and treasurer, all of whom were formerly engaged in the brick business in Illinois. They make both pressed and common brick, and expect to ship a large part of their product to Chicago and St. Louis.

The clay deposits of western North Dakota are attracting the attention of capitalists and manufacturers, and a party of Holland capitalists have purchased land near Belfield, on which a colony of Hollanders will settle in the near future. Word has been received that the colonists have sailed, and they are expected in Belfield in the near future. The chief industry to be established at Belfield will be an immense brick plant.

The Georgia Red Brick Company has been chartered, and will build a plant of 100,000 capacity at Pooler, Ga. Mr. George H. Drew has been engaged as general manager, and will have entire charge of the construction of the immense plant, which will be modern throughout and be equipped with Chambers brick machines and pug mill, rollers and granulator, an 18x42 Corliss engine, three 66"x18' tubular boilers. A Thew steam shovel will be used in the clay bank, which, by the way, contains enough clay to last the company from fifty to seventy-five years. Mr. George H. Baldwin is president of the company, and is enthusiastic over the prospects of the new concern, which is really the successor of the Rothwell

Brick and Manufacturing Company, which has been operating a small plant at Pooler for a number of years.

Fire at the plant of the New York Pressed Brick Company, Canandaigua, N. Y., destroyed a lodging house occupied by the brick yard laborers.

The Republic Brick and Construction Company, of Republic, Mo., has been incorporated, with \$10,000 capital stock, by J. L. Derry, William L. O'Bryant and E. H. Britain.

A. G. Kahn, of Selma, Ala., is organizing a company to erect a shale brick plant of 100,000 daily capacity at Leeds, Ala. Work on the plant will be started in a very short time.

The Croninger & Meredith tile plant at Hartford City, Ind., was almost completely destroyed by fire recently, entailing a loss of \$15,000, partly covered by insurance. The plant will at once be rebuilt.

President Charles M. Scott has sold out his interests in the Dover Brick Company to W. B. Elliott, of Delmar, a practical brickmaker, and Mr. Elliott has taken charge of the plant, near Dover, Del.

The name of the Hamilton Clay Manufacturing Company, of Carthage, Ill., has been changed to the Plumb Brothers Brick Company, and the capital stock of the company has been increased from \$20,000 to \$75,000.

The plant of the Marion Brick Company, at Marion, Ind., which has been closed down for almost two years, has again resumed operations, and, while only running to about half capacity now, will soon be running full time.

Simon Kilne, the oldest brickmaker in Reading Pa., who has been making brick for more than a half century, celebrated his eightieth birthday May 14. He retired from active management of the brick plant a few weeks since.

W. M. Brown and Dr. W. S. Craft, of Brockwayville, Pa., are interested in a movement to organize a company to be known as the Brookville Fire Brick Company, to develop the clay deposits in the territory of Brookville. A plant is to be erected for the manufacture of fire brick, building brick and paving brick.

The incompleting How-Kim brick plant at Cherryvale, Kas., an unfinished manufactory, promoted two years ago by two St. Joseph, Mo., girls, Misses Howard and Kimber, and consisting of four gas wells, several kilns and some buildings, has been purchased by Charles L. Snyder at a sheriff's sale. It is likely that a stock company will be formed and the project pushed to completion.

The plant of the Rutland (Vt.) Fire Brick Company was destroyed by fire June 2, entailing a loss of \$10,000. The plant was owned by A. W. and C. A. Perkins, and in order to encourage them to rebuild there is a movement on foot in the town of Rutland to hold a special election to relieve all improvements from taxation for a period of ten years, conditioned upon a fireproof factory building being erected.

George W. Ford, the veteran brickmaker of Dover Point, N. H., known all over that region as an expert brick burner, died May 22 at his home at Dover Point, aged eighty-six. He had been in failing health for some time. Mr. Ford did not retire from manufacturing until he had passed the four-score mark. He was in the business sixty-three years, operating a yard on the Cocheco river bank which he inherited from his father. He began in his father's yard when nine years old. A more skillful brick burner was never produced in that part of New England, and even after he had closed his own yard

(Continued on page 866.)

THE ANTON VOGT KILN CONSTRUCTION COMPANY,

Down-Draft Kilns designed for all purposes.

OUR SPECIALTY

A Superior Kiln for Common Brick that is
AS CHEAP AS an updraft kiln.

Fort Smith, Arkansas.

References: Munson Bros. Brick and Tile Works, Capron, Ill.; Patton Clay Mfg. Co., Patton, Cambria Co., Pa.; Tom Hope, Pres. Ada National Bank, Ada, Okla.; Cooper and Bones Brick and Tile Co., Ada, Okla.; Alabama Brick and Tile Co., Hollywood, Ala.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

“Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed.”

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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EDITORIAL NOTES AND CLIPPINGS—Continued.

since his eightieth birthday his services had been in great demand.

Chris Slater will start a brick yard at Wibaux, Mont., where there is a good demand for brick. Indeed, Mr. Slater has orders for more than a million brick booked now.

The Unit Brick and Tile Company has been organized to manufacture brick at Port Jefferson, N. Y. The directors are Robert L. Davis, A. C. Fiske, L. H. Chambers and others.

A charter has been granted the W. B. Davis Brick Company, of Richmond, Va. W. B. Davis is president, T. B. Davis vice-president and W. B. Gordon secretary of the company.

At a recent election of the directors of the Harbison-Walker Refractories Company, Pittsburg, Pa., J. J. Brooks, the general sales manager of the company, was elected to the directorate.

D. Heenan has a fine body of shale near Streator, Ill., which he would like to have developed. Interested parties will learn something to their advantage by getting into communication with Mr. Heenan.

The dryer of the Knoxville Land Improvement Company, at Knoxville, Pa., was completely destroyed by fire recently, and 10,000 brick which were in the dryer were destroyed. The loss was almost wholly covered by insurance.

The Eagle Brick Company, operating near Mill Hall, Pa., have voluntarily advanced the wages of all their employes about 10 per cent., an act which is appreciated by the men in these times of high prices for the necessities of life.

T. S. Watts and M. J. Baugus are at the head of a move to organize a company to manufacture brick at Davenport, Okla. The clay in that vicinity has been tested and found to be of good quality, and the Commercial Club will furnish a bonus.

The South Houston Brick and Tile Company, Houston, Texas, is getting its plant in shape for operation at an early date. The plant is equipped throughout with machinery from the shops of the American Clay Machinery Company, Bucyrus, Ohio, and has a daily capacity of 40,000 brick per day. Frank and E. F. Bowman, H. P. Rhodes and Guy Hahn are interested in the concern.

Articles of incorporation have been filed by the Rose Hill Tile Company. The company has been incorporated for a term of twenty years, and the capital stock is \$10,000. The principal place of business will be at Rose Hill, Iowa, and they will manufacture and sell drain tile, brick, building blocks, posts, and other products of clay. The officers of the company are as follows: President, T. W. Denney; secretary, H. D. Jarvis, and treasurer, J. R. Busby.

Albert D. Klein, manager of the Sunderland Brick Company, Omaha, Neb., recently returned from Cheyenne, Wyo., with an order for eight carloads of high-grade press brick which are to be used in the new hotel building to be erected in that enterprising city. The hotel will be fireproof, modern in every particular, and in point of architecture one of the most attractive in the Rocky Mountain district. The exterior is to be of light color, the brick being cream buff with impervious surface.

The receivers of the Bell Pottery Company, Columbus, Ohio, recently sold the plant and forty acres of land belonging to the company to D. E. Putnam and George Hook for \$75,700. Most of the land has been platted and the lots will be sold. There will also be an attempt to either form a company to operate the plant or to sell it. The purchasers are trustees for the bondholders of the company, and in the purchase only acted as trustees. The plant and acreage now belongs to the bondholders.

The new industry for Wheeling, W. Va., to be known as the Wheeling Tile Company, is now established, with an authorized capital stock of \$100,000, of which \$75,000 has already been disposed of. Four kilns will be started and employment will be given to about seventy-five people, the help to be increased as the demand calls for it. Among those connected with the organization of the company are S. Ott Laughlin, George W. Lutz, W. H. Hearne, C. R. Hubbard, Nelson Hubbard and others.

Under date of May 31, T. J. Weatherford, president and manager of the Globe Press Brick Company, whose plant at Ferris, Texas, was completely destroyed by fire April 21, writes that the new plant was running night and day, making 120,000 brick per day. The plant is equipped with three Boyd "Special" brick presses, which were installed under the direction of Mr. L. W. Flood, of the Chisholm, Boyd & White Co.,

of Chicago. Mr. Weatherford states they now have one of the most up-to-date brick plants in the State of Texas.

The J. A. Smith Brick Company's plant at McBain, Mich., is now in operation, turning out 20,000 brick per day. The capacity will be increased as the demand warrants it.

V. L. Garber, manager of the brick plant at Kentwood, La., writes that they are very busy this season. While it is only a hand yard, they turn out 4,000,000 brick per year.

The Johnstown Clay Manufacturing Company has been incorporated at Johnstown, Ohio, with \$20,000, by Friend Butt, H. J. Butt, J. C. Butt, Henry Butt and M. B. Butt, all of Johnstown.

The Buckeye Brick and Block Company, which has a large brick plant at Ellis, Ohio, and office at Zanesville, has moved the main office to Columbus, Ohio, in the Chamber of Commerce building.

A large brick plant is to be established at Aberdeen, S. Dak., by D. D. and M. H. Jones, who have a large deposit of shale. Aberdeen is a growing town, and the new company will find a ready market for their product.

J. B. Kendall is entitled to recover damages in the sum of \$8,436.91 from the Northwestern Railway Company for the loss by fire of his brick yard at Byron, Minn., which he claimed caught fire from the sparks from a Northwestern engine.

John H. Miller has brought suit against the Savage Fire Brick Company, of Johnstown, Pa., to recover damages in \$3,000 for injuries sustained by his son, Charles R. Miller, a minor, while working for the company at Keystone Junction last July. The boy's foot was caught in a chain and drawn into cog wheels, which crushed the ankle, permanently incapacitating him for labor.

The Jamestown Brick and Tile Company has been organized at Jamestown, N. Dak., and the following officers have been elected: J. Schelde, president; George Lutz, vice-president; Morris Beck, treasurer; Halvor Sundahl, secretary; A. W. Aylmer, attorney. O. A. Miltz, of Norwalk, Ohio, is superintendent. He has had twenty years' experience. The company is capitalized at \$25,000.



READERS OF THE CLAY-WORKER:

SEND US THE NAME OF YOUR DEALER AND

ONE DOLLAR and we will send you *post paid*

SIX TRIPLE SERVICE TIES

Four-in-Hands or Bow Ties in any Shade.

Here are the colors: Tan, Lavender, Red, Grey, Dark Green, Light Green, Navy Blue, Light Blue, Brown, Wine, Purple and Black.

Each tie is silk-stitched, square-end finish, in one piece, and full reversible. Four-in-Hands 45 inches long, Bow Ties 35 inches long.

These ties are as "natty" in appearance as the best fifty-cent tie you can buy anywhere, and will **OUTWEAR ANY THREE FIFTY-CENT TIES.** That's the TRIPLE SERVICE. That's part of our guarantee to you.

TRIPLE SERVICE TIES are made of "EGYPTO" SILK STRIPE POPLIN, a high-class washable fabric, with wearing qualities superior to any all-silk goods. It is warranted not to wear fuzzy, and in brilliancy of dye and finish is not excelled by any other fabric produced. It is the ideal neckwear fabric.

Your money back by return mail if you are not thoroughly satisfied

Send us the name of your dealer today and One Dollar in Draft, Money Order or Cash and we will send you SIX ties of your selection, prepaid.

INDIANAPOLIS NECKWEAR CO.,
900 SAKS' BUILDING INDIANAPOLIS, IND.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LIV.

INDIANAPOLIS, IND., JULY, 1910.

No. 1.

Written for THE CLAY-WORKER.

THE WONDERFUL HUDSON TERMINAL.

THE LARGEST BUILDING IN THE WORLD—16,300,000 BRICK USED IN ITS CONSTRUCTION.

THESE TWIN BUILDINGS, running through from Cortlandt to Fulton street north and south, and fronting for two blocks on Church street, constitute what is probably the most remarkable and perhaps the largest building in the world.

Primarily intended as a terminal for the Hudson River tunnel system, it developed into a mammoth office structure unlike anything previously known.

Underneath it is a wonderful system of electric railways, providing for handling six and seven-car trains under a headway of one and one-half minutes, and capable of handling some 75,000,000 to 80,000,000 passengers each year. And that, too, with no particular discomfort, excepting the necessity of standing during the rush hours.

This building is founded upon the largest cofferdam in the world.

It is made of concrete, 420 feet long, 178 feet wide at its broadest part, with walls eight feet thick and extending down to solid rock, 75 feet below the surface. The tunnels enter this cofferdam at each end. The trains enter from under the river through Cortlandt street, and pass out from the station through Fulton street.

The tracks are 30 feet below the surface of the street. Passengers reach the track levels by a series of inclined planes and numerous stairways, and the arrangement of platforms is such that passengers enter from one side of the train while the incoming load is discharged from the other side. In this way all confusion is avoided and all danger of interference is

abrogated. On this level are all the waiting rooms, restaurants, etc., usually found in a railroad station. The subdivision of the outgoing traffic by the numerous stairways and the concourse will go far to prevent crowding and confusion.

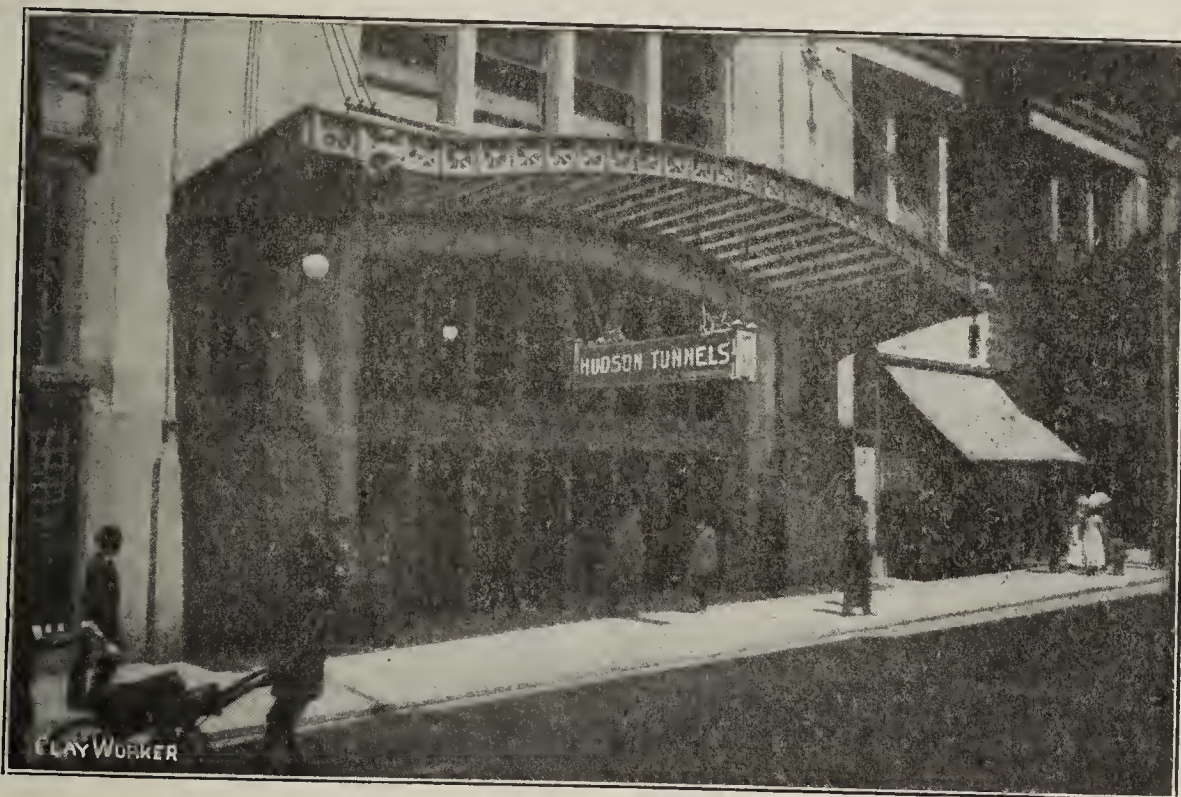
The great office buildings, twenty-two stories high, are separate above the street, but are all one in the basement. They constitute the largest and heaviest office structure in New York. According to official figures, 24,000 tons of structural steel, 16,300,000 brick, 1,100,000 cubic feet of concrete, 4,500 tons of architectural terra cotta, 520,000 square yards of plastering, 88,000 feet of plumbing pipe, 500,000 feet of conduit, 113 miles of wiring, and 13,000 electric fixtures, requiring 30,000 incandescent lamps, are in use in this mammoth structure.

There are about 5,000 windows, with about 120,000 square feet of glass in the building. There are also about 5,000 doors, as well. It takes 73 elevators, the largest number ever installed in an office building. They are all operated by electricity. Thirty-nine are passenger cars, twenty-two rising without a stop to the eleventh floor, while seventeen are local elevators and stop at all floors. These thirty-nine elevators handle something like

30,000 passengers daily. The building rises 275 feet from the curb line.

The engineering features of this extensive structural operation were worked out by Charles M. Jacobs, chief engineer of the tunnel system, assisted by J. V. Daires. The architects were Clinton & Russell, a leading New York firm.

As can be seen from the accompanying illustration, the exterior is severely plain, being principally plain brick with terra cotta trim. No special architectural adornment was attempted, yet the effect is one of strength and richness, combined with a massiveness which seems to impart stability. Effort was exerted to admit as much light and air as possible,



One of a Half Dozen Entrances to the Hudson Terminal Buildings.

and all rooms open to the air. This problem is seldom so successfully solved in the construction of great office buildings. Often utility forces sacrifices which, while not fatal, mar the finished structure to some extent.

The interior work partakes of substantially the same characteristics. The work is plain, but solid, and the general effect is pleasing. So far as possible, fireproof methods of construction were adopted, consequently the building is almost wholly free from danger by fire.

The basement, with its stairways and its inclined planes, is decorated with a vast quantity of white tiling. While the beautiful appearance of the beautiful, clean white tiling is seriously marred by the numerous advertisements, it is still beautiful, and contributes its share toward keeping the basement light and almost wholly free from gloom.

There are stores of various sorts on the concourse floor, and they seem to be doing a good business.

This, in brief, is a description of this marvelous building, one which should be visited by every one who goes to New York. It will be a revelation in structural work. BURTON.

IMPORTED EARTHEN, STONE, AND CHINAWARE.

The annual report of the Bureau of Statistics, Department of Commerce and Labor, on the exports and imports of merchandise by countries for the year ending with June, 1909, is now available. It is a year behind time, consequently it is not anything of a gauge to the business of the current year, but it does give us an insight into details that are not available earlier. It tells us where the different articles come from.

We learn, for example, that by far the greatest parts of our brick and tiles that are imported come from England. Of a total of \$160,269 last year England supplied \$120,500, Scotland \$14,080, and, strange to say, Canada was next in line with a supply of \$9,862; then came Belgium with \$5,546, followed by Germany with \$2,579 and the Netherlands with \$2,277. Other countries furnished the balance in small quantities. There was something more than \$1,000 from Asia, and more than \$1,000 worth from Mexico.

Chinaware, not decorated or ornamented, was imported to the value of a little more than \$1,000,000. In this the race was pretty close between England and Germany. England led with a total of \$342,009. Germany followed with a total of \$338,424; next came France with a total of \$274,652, followed by Austria-Hungary with a total of \$79,208. The balance of the million dollars was made up of comparatively small quantities from various other countries.

In decorated or ornamented ware there was a total of \$8,420,809 imported, and more than \$7,000,000 of this came from Europe. This is the stuff that Germany shows up prominent in, supplying nearly half of the total receipts. The amount of decorated china, porcelain, etc., received from Germany last year was \$3,129,822. England supplied \$1,843,679 and France \$1,397,088; Austria-Hungary furnished a little over three-quarters of a million, the exact amount being \$775,429. These were the important sources of supply, and with nearly all of them the quantity shipped us last year was smaller than usual. Germany usually runs nearly \$5,000,000, and is therefore nearly one and one-half million dollars shy of the usual annual shipment. England is about three-quarters of a million shy in the shipments of last year. France came nearer to shipping its usual quota, but even the French trade fell off some. From Japan we received a little over a million dollars' worth, which was less than the receipts of some years, but more than we were getting from there five years ago.

There was, in addition to all this, some miscellaneous earthenware, amounting to a total of \$174,128, which was less than half of former imports. Taken altogether, our import trade in earthen, stone and chinaware shows a decline of considerable moment. Part of that decline last year can be charged up to slow industrial conditions at home. But probably a more important part can be charged to the fact that

our domestic trade is developing business successfully in competition with the imported ware, and gaining more of the trade each year, with the result that we are now more nearly than ever before in position to supply the domestic needs from home manufacture. This is a good move in the right direction, but we should move still further with it, and not only supply the home trade, but do a lot of exporting in these products.

We do export some. The total exports of earthen and stoneware for the same period under discussion was \$730,037, and of chinaware \$73,598. The bulk of our export trade in earthen and stoneware went to Canada and to the countries south of us, Cuba being the next important customer to Canada, but Mexico and several of the South American republics were also good customers. Canada was also our best customer in chinaware, but, strange to say, the next best customer was England, the very country from which we receive lots of china. The Central and South American provinces also bought a fair quantity, but probably not nearly so much as they would buy if the trade was properly cultivated. In short, if we can meet this competition at home and capture the domestic trade as we have been doing in many lines, it should only be one step further to meeting it in the North and South American countries at least and developing quite an extensive trade.

ONE WOMAN'S SUCCESS.

VERILY, there is no truer saying than "from small beginnings sometimes come big endings," says Frances Kingden in the Chicago Advance. Little did Mrs. Mary Duschek think ten years ago, when she went out into her back yard on the Northwest side of the city and dug up some clay to make a flower pot, that she was starting an art that would become known all over the country and find its place in the school room, the restaurant, the humble flat and the millionaire's palace. She did not dream—so modest is genius sometimes—that within her two capable hands, that had been so busy for years with household cares, the baking of the good brown bread her husband liked and the washing and dressing of little children, there lay the wonderful ability to fashion from just common clay, pottery which would entirely carry out the William Morris idea of the "useful and the beautiful."

Mrs. Duschek then only knew that an unkind wind had blown two prized geraniums off her window sill, and that she must have new flower pots to replace the broken ones. Slowly she molded the moist clay from her yard into something which would hold the plants, and so delighted was she with the work of her hands that she filled in all of her spare time shaping flower pots together. In a little while a nearby florist gave her an order for some of these pots, and when more florists and the hardware stores wanted them too, other members of the family began to work the clay. A horse and wagon were bought for delivery purposes, and it was one day when the wagon was standing at their door, piled high with flower pots and some glazed milk pitchers for a creamery, that a school teacher became interested in the ware. She quickly discovered that Mrs. Duschek would make her some models for the pupils to draw from if she furnished the patterns desired. Now there is not a public school in Chicago whose drawing pupils do not work from Duschek models. The Prang Educational Company, which furnishes art supplies to the various schools, placed a large order yearly with Mrs. Duschek. The largest schools on the far Western coast and the little district schools in the country are constantly sending in patterns, with the dimensions and color desired, for more pottery models. The beginners at the Art Institute all learn to draw vases, bowls and pitchers of Mrs. Duschek's making.

A few years ago one of the art buyers of Chicago's largest store (Marshall Field's) was attracted by some beautiful dark green jardinières, which he saw in a wholesale hardware store. They had been made by Mrs. Duschek, who, woman like, had put them in with the order for flower pots. It did not take very long for the buyer to order some of these, but when the first check came in from the store Mrs. Duschek was so amazed that she thought a mistake had been made and sent back five dollars addressed to the owner of the store. She

was soon made to realize her good fortune, however, for orders for candle sticks, vases, bowls, fern dishes, lamp stands, umbrella stands, pitchers, etc., began to come in, not only from the big store and from other local firms, but from dealers all over the country.

The side line of making baking dishes, ramkins, cassaroles

damp clay has been molded into the various articles desired, they are put on long high shelves, where they must dry for ten days. The hard part of firing them for eighteen hours comes next, and one can imagine the feelings of the family during this process, as the first week they worked on large orders over \$500 worth of pottery was ruined and had to be



The Great Hudson Terminal Buildings, New York City.

and bean pots has since been added to the business. Almost all the restaurants in the city are using the Duschek ware, and one State street tea room alone orders over 3,000 pieces every year for the serving of individual baked dishes.

The manufacture of the pottery is all done in the basement of the family home, on South Campbell avenue. After the

thrown into a vacant lot. Mrs. Duschek attends now more entirely to the glazing and selling of the pottery, and her husband and handsome boy, Frank, to the molding. The large quantity of clay which they use is bought by the ton in Zanesville, Ohio, as probably no Chicago back yard could furnish enough for their beautiful and profitable art.



Written for THE CLAY-WORKER.

USE OF PRODUCER GAS IN BURNING.

(Eighth Paper.)

WE HAVE MANY INQUIRIES in regard to the use of producer gas in burning clay wares, and take this opportunity to answer some of them.

(1.) Is there any economy in the use of fuel gas? Considered solely from the standpoint of fuel consumption, there is no economy, but on the contrary quite a little loss.

The gas producer gasifies part of the fuel at the expense of another part. Some portion of the fuel is actually consumed in producing the gas, and this fuel is represented in the initial heat of the gas, which may be about 700° F. If the gas cools before it reaches the kiln, all this heat is lost, and the fuel which generated this heat is wasted. We make up from the report of the U. S. Fuel Testing Report the following data: The average of twenty-four coals tested show a heating value of 155.8 (B. T. U.) (British Thermal Units) per cu. ft. of gas. Each pound of coal as fired averaged 52.6 cu. ft. of gas, equal to 8,195 B. T. U. Each pound of coal used in the producer plant during the producer test averaged 47 cu. ft. of gas, equal to 7,323 B. T. U. The average of the coal as fired was 11,583 B. T. U.

The loss in the producer alone was 29% of the heating value of the coal, and if we consider the coal used in steam, etc., to operate the producer, the loss was 37%. The U. S. tests were made for power, and the gas was cooled and scrubbed, but in any event a high percentage of the fuel value is lost if we allow the gas to cool. Even though we save the initial heat by having the producer close to the kiln, there will be some loss due to producer radiation and heat absorption in the tunnels leading to the kilns.

Even though we save a large part of the initial heat by using hot gas, there is also another source of loss which cannot be avoided—carbonic oxide. The gas we try to produce cracks or breaks up readily at temperatures of the gas producer, and forms carbonic acid and carbon.

The former is a dead or completely burned gas, while the latter is deposited as soot. Gas leaving a producer, as will be seen from the U. S. report, averages about 700° to 800° F., and it is about this temperature that carbonic oxide has the greatest tendency to crack. If producer gas could be run to 1800° F., the tendency to cracking would be practically nothing, but the tendency increases with lower temperatures.

In the U. S. report we note that the average content of CO₂ (carbonic acid) in the gas was 9.87%.

When we consider that the highest possible content of CO₂ in combustion gases from pure carbon burned in air is 21%, we realize that the loss in fuel in a producer may be considerable.

It matters not under what conditions you fire producer

gas, you will get less value from the fuel than if fired direct.

In order to get reasonable return from producer gas, it must not be allowed to cool.

(2.) What temperatures can be obtained from producer gas?

It frequently happens that a manufacturer is willing to sacrifice fuel in order to get higher temperatures, but he should not attempt to use producer gas. Fuel gas is a very lean gas, and is not suitable for high temperature when fired cold in periodic kilns. In fact, fired cold, assuming 25% excess of air for proper combustion, and a kiln radiation loss of 20%, it would be difficult to get above Cone 3, and under less favorable conditions, which often prevail on a brick yard, it will be impossible to get a temperature of Cone 1.

If the gas can be used hot, and the air for combustion in the kiln preheated, then producer gas becomes practicable.

These conditions prevail in a continuous kiln.

Even in the continuous kiln there can be no economy of fuel over direct firing—on the contrary, there will be some loss; but this loss will be offset by better distribution of the heat, a central plant for coal distribution and removal of the ashes, cleaner ware, possibly less kiln repair, mechanical firing over hand firing, etc.—all of which are in favor of gas producer continuous kilns.

There are a few situations in which producer gas might be used in periodic kilns. Suppose we have a brown coal with 30% to 40% moisture and high in ash. Such coal cannot be burned successfully without at least 100% excess of air, and with radiation losses incident to periodic kilns, a temperature above Cone .010 would hardly be possible. The same coal made into gas and cooled to eliminate the moisture, and burned with not to exceed 25% excess of air, would give a kiln temperature of Cone 1, perhaps—a decided gain in temperature at some expense in fuel.

POWER.

There is a great volume of literature on the subject, and anything we might say would be feeble in comparison.

It is only our purpose to compare the different methods of generating the power and their application to brick yards.

Gas producers and gas engines are rapidly coming into use, and there is much discussion in regard to the economy in their use. It can be shown that over 40% of the fuel value can be obtained in power from the gas producer engine, while the steam engine gives return of less than 10%.

The gas producer for power purposes is in the development stage, and has not yet reached the point where it can be adopted for any coal. It is working successfully on anthracite coal gas, and perhaps on semi-anthracite, and in one or two instances we are informed bituminous coal is being used.

The realization of this process for general power purposes is greatly to be desired, but the brick yard will be among the last to adopt it.

While we may get only 10% value from our fuel in power,

we have need of all the exhaust steam for drying, and from which we get for this purpose over 40% return from the fuel, making a total of over 50%, which is greater economy than can be had from a gas producer plant.

We wish to state emphatically that the gas from an ordinary brick yard gas producer is not suitable for a gas engine. The engine may make a few turns with such gas, but at the end will groan and die.

The gas for engine purposes must be absolutely clean—free from tar, soot, sulphur, etc.—and it is on account of these that producer gas from bituminous coals has not been successfully applied.

If natural gas is available for power purposes, at a reasonable rate, then a gas engine may show considerable economy over steam, but it should be used direct, and not as fuel under a steam boiler, as is the case in many factories.

The use of electrical power is being seriously discussed and introduced to some extent in clayworking plants. We were recently asked if it would not be cheaper to buy power at 3½ cts. per kilowatt hour than to install a steam plant with coal at \$165 per ton. One horse power hour equals .746 kilowatt hours. On the basis of 3½ lbs. of coal per horse power hour, a 100 h. p. plant will require in 10 hours 3,500 lbs. of coal—let us say two tons; 746 kilowatts will cost \$26.11, which will leave a nice profit in favor of the steam plant. Moreover, it must be remembered that we get greater return from the steam for drying, four times over, than for the power, from which we conclude that the steam power will be economical.

Every plant should be equipped with a dynamo, or buy electricity for lighting purposes and for such light machinery as would require counter-shafting, etc., to operate, but we doubt the expediency of using motors for the heavy machinery.

The heavy machines—such as grinding mills, pug mills, and auger machines—are under constant work all the time, and require full power. They are few in number, and there should be no difficulty in making a satisfactory and economical arrangement—which is the most serious problem in using shafting and belts, and the greatest advantage of motors.

Represses, cutters, dry presses, hoists, etc., which are intermittent in their high power operation, can advantageously be operated by motors if by so doing a better arrangement is possible.

Where several plants can be operated from one power house, there would be economy in the use of motors, since such a central power house could be equipped with compound turbine or reciprocating engines, water tube boilers, automatic stokers, etc., the cost of which would be excessive for a single plant, but where divided up among several plants, the cost per horse power hour would be less for each plant than to generate the power in several less economical power plants.

MIXING WORK AND STUDY.

Practical training, or in our own words a greater amount of actual work mixed along with the studies of those who are seeking higher education, is an idea that is gaining ground all around, and is a practice that is being put in various forms. For example, we are advised by the University of Pittsburg that it has adopted a co-operative plan of engineering instruction, by means of which the university students put in four terms of from three to four months each at actual work among the industries at Pittsburg, along with their studies. That is, arrangements are made by which they can be actually employed in some industry along the line of their studies, so as to get the practical experience along with the theoretical knowledge, and thus be more thoroughly equipped when they finish their school term to take up the responsibilities of actual work than would be practical otherwise.

This is an excellent idea that should make universities more popular and enable the young man to get his schooling with less time and more comparative thoroughness of instruc-

tion, because he will get not only theoretical instruction, but enough practical experience along with it to qualify him for entering actively upon his calling, whereas if he took the course of instruction it would then be necessary to serve a sort of apprenticeship at the actual work.

This, in a measure, is taking up the straight trade school idea, and every move of this kind simply adds more weight in general to that idea, which has been advocated here right along, of giving the boys some actual work in their trade or calling along with their studies. There are several ways in which a part of this may be obtained. They may add more work and physical training to our public schools as well as the universities, and on the other hand develop more trade schools in which will be embodied the course of studies in universities combined with the actual practice of doing the skilled work. It is the modern and right theory in regard to training young people. They should be trained mentally and physically at the same time, or as near at the same time as practical, and not have a number of years taken out of their life for mental training alone and then a number of other years for physical training alone. Let the training be mixed in, so that the development of both comes together. This will give us the greatest degree of efficiency, and incidentally will safeguard the future of industries by insuring proper training of the young folks.

DON'T GO TO SLEEP IN THE GOOD OLD SUMMER TIME.

IT IS STRANGE how shortsighted some business men are that in the summer time they permit their business to relax. There should be no such thing as a dull summer, and with many there is no such thing, but it is with the one that does not relax his efforts of continuing a campaign and a follow-up system at all times. The man who gives up in the summer time finds that his business had deteriorated in the fall, and the fellow who has everlastingly kept at it in his respective line of business has forged to the front and taken from him much of his trade that otherwise would not have slipped from him.

Neglect your clients during the summer months and they will neglect you, and you will find that you have a difficult task to stimulate their interest in your affairs. The one who has been constantly pushing, never relaxing, will have interested him.

There are enterprising ones who will appreciate the logic contained in this article and those whom the shoe won't fit: they are the enterprising ones.

Let us ask why the summer months are not as good as the spring, winter or fall months? During the summer the investor has more time to devote to literature. Should he have a few days time to himself he can devote thought and time to considering the proposition you have placed before him, but do not think that because you brought your proposition before him in January it will be remembered in August, unless you keep constantly at it. It is the everlasting, follow-up, keep-at-it system that brings results.

The man who is looking for opportunities to relax his efforts in his business campaign can find them not only in the summer months, but in any month in the year. There is always something doing. We have our elections, presidential, municipal, etc.; we have Christmas, New Year's, Easter and many other holidays. The fellow who has the disposition to relax and procrastinate, like the fellow who is always looking for an excuse to get drunk, can find that excuse. The drunk gets there if he is happy; if he is not happy he gets there just the same. The difference between the jag hunter and the procrastinating promoter is that the jag hunter finds the jag, but the promoter finds nothing.

The fact of the matter is, one season is as good as another. Take your vacation if you wish, but always see that some one takes your place, in order that the campaign may be kept up, and when you return to your business you will find that the machinery has not become rusty, but still is in good working order for the fall campaign.—Exchange.

Written for THE CLAY-WORKER.

BRICKYARD SKETCHES.

A True Narrative of a Trip with Two Ohio Manufacturers.

ONCE UPON A TIME, the story goes, the editor of THE CLAY-WORKER was kidnapped by two gay Cleveland sports on mischief bent, and taken against his will on a wild carouse that was characterized by unseemly revelry and mild dissipation. So goes the story which by force of repetition has gained credence among many of the good clay-workers of the Ohio valley. It is even declared by some with seeming reasonableness that the carouse was one of the causes leading to the temperance crusade which has made most of Ohio a dry country. It is marvelous how such tales originate, and more marvelous how they grow with the telling; repetition, like the grateful rain and summer sun on plant life, causes



Charles Deckman, a Recent Photograph.
Taken for THE CLAY-WORKER.

remarkable growth. Indeed, the growth of Jonah's gourd was not more marvelous than the growth of such stories, as they are told and retold.

The truth about this much-talked-of incident is that some years ago, when on his way from Cleveland to Canton, the CLAY-WORKER scribe was intercepted at the Euclid Avenue Station by two of Ohio's most substantial paving brick manufacturers, who, wholly by persuasive methods, prevailed on him to change his itinerary and accompany them on a trip of inspection to their plants at Carrollton and Malvern. The talk of mild dissipation in connection with the trip is pure fiction. Positively, there was no mild dissipation in connection with the trip—nothing like it. Though on the train several hours, the party never once repaired to the cafe car; it wasn't necessary. The two persuasive gentlemen were traveling under light marching orders, as it were; their baggage consisted of a couple of ordinary looking grips, one of which, however, proved to be heavily loaded. Indeed, it is seldom,

if ever that one grip has been known to carry such a load. Since the trip has been talked of so much, the scribe has often wished he had taken an exact inventory of the contents of that grip. Though an ordinary grip in appearance, it contained more than two ordinary men could carry comfortably, and so the CLAY-WORKER scribe helped some, just to lighten the load.

As has been stated, this all happened several years ago, and one is not supposed to remember minor details so long, but it can be asserted with certainty that the trip was a pleasant one, for Charles Deckman and Spencer Duty, who played the major roles, were most companionable fellows, and they are still, though the intervening years have taught them the unwisdom of attempting to tote such a heavy load in a



Loading Pavers in Cars.



The Shale Bank at Carrollton.

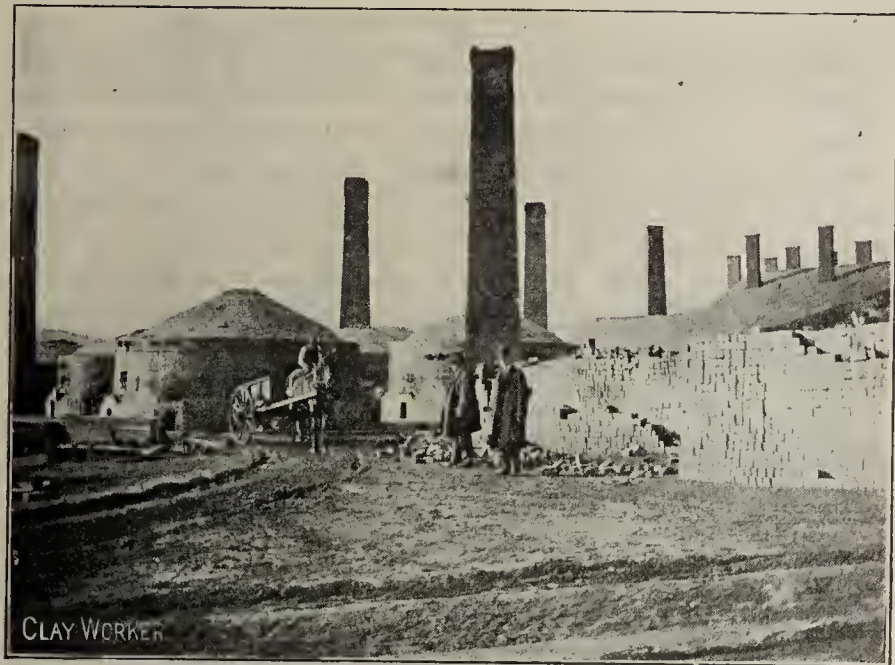
single hand bag. Having grown sedate and circumspect with advancing years, and deserving full credit for proper deportment in all their daily walks of life, Messrs. Deckman and Duty deserve to be acquitted of the charge of kidnapping an unsophisticated CLAY-WORKER scribe and leading him into mild dissipation. The statement does them injustice, and so we now set forth the plain facts, and repeat, in all seriousness, that there was no mild dissipation on that occasion.

THE PAVING BRICK PLANTS AT CARROLLTON AND MALVERN.

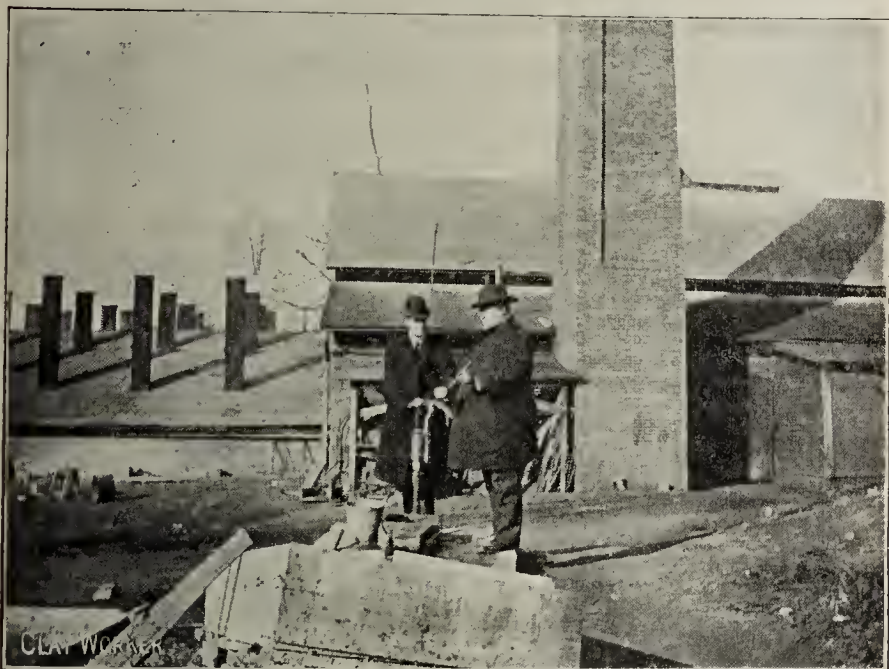
The party reached Carrollton late in the afternoon and repaired at once to the brick plant which the firm of Deckman & Duty had but a short time before acquired from the Carrollton Granite Brick Company. A visit to the shale bank afforded an ocular demonstration of the fact that there was an

abundance of good raw material, some seventeen acres of excellent shale, with a six-foot vein of fire clay thrown in for good measure. The mechanical equipment was a combination of Freese and Bonnot machinery, so was good, of course. Some improvements were under way, including the installation of a waste heat system of drying. The usual type of round down-draft kilns were in use, and the quality of pavers made were such as to insure a ready market for the entire product of the plant.

The plant at Malvern, which was visited the next morning, is quite similar in character and equipment, there being an inexhaustible supply of shale and low grade fire clay, with, an added advantage, a vein of workable bituminous coal, which is used both for steam and kiln purposes. Both plants were



A Glimpse of the Malvern Plant.



At the Pump the Morning After.

running to full capacity, as is usually the case; Ohio plants get the habit of running regularly the year round. Doubtless, important improvements have been made in the equipment of these plants during the intervening years, for Deckman and Duty are progressive and enterprising manufacturers. Some day in the near future we hope to again visit these plants, and to tell our readers more about them. It is a cinch they will bear close inspection, and we advise any of our readers who wish to make a tour of inspection among the brick plants of the Ohio valley to include Carrollton and Malvern in their itinerary. Letters of introduction or credentials of other sort will not be necessary, but the pleasure of the trip will be enhanced if the gentlemen whose genial faces are pictured in these pages are present, and they undoubtedly will be if notified in advance of the intended visit. They vie with one

another in showing courtesies to their fellow craftsmen, but they will not indulge in or encourage any dissipation, even of the mild sort, stories to the contrary notwithstanding.

GOOD BRICK PAVEMENTS FAVORED ABOVE ALL OTHERS.

THE SPLENDID brick highways radiating from Cleveland are having their effect upon other communities, and act as an example of the value of brick. Here is an article printed in the Cleveland Plain Dealer of April 9, from Chardon, Ohio, which calmly acknowledges that, after a careful survey of the different materials had been made, brick was favored above all others:

"People in rural sections of Geauga county, where improved highways have been constructed, and elsewhere, are learning more about road building than they knew before.



Spencer Duty Stands Without Hitching on a Good Brick Pavement.

They are learning what is the best material to use, and what is the cheapest in the end.

"A new road is to be constructed on the highway between Hambden and Chardon this spring. Already residents of both towns are expressing themselves in favor of a brick highway. Several citizens have recently expressed a willingness to contribute \$100 each to help pay for a brick road.

"They have made an investigation and satisfied themselves that brick is cheaper in the end than macadam. The new macadam highway constructed in Chardon last year will have to be mended this year. The brick pavement on Main street in Chardon was laid five years ago, and less than \$50 has been expended for repairs."

When flying machines get to be popular, will refuge cellars become necessary in lieu of the old cyclone cellar for those who are not able to or do not choose to indulge in flying? For surely, with all the flying, there will be something dropping from time to time.



Professor Dr. Wilhelm Michaelis.—Dr. Wilhelm Michaelis, one of the best known chemists in the clay and cement industries of Germany, has been given the title of Professor by the German Emperor. Professor Michaelis is the father of the sand lime brick industry, and has the first patents covering this system of making brick.—*Tonind Z.* No. 48, 1910.

Expensive Porcelain.—At an auction recently held in Berlin some porcelain pieces from South Germany were sold. They were made about a century ago, and came from the Ludwigsburg, Höchst, and Frankenthal factories. A group of figures representing a shepherd pair was sold for 4,300 marks. A figure, "Venus Blindfolding Amor," brought 5,200 marks.—*Deut. Topf. & Z. Z.* No. 31, 1910.

Clayworking School, Laubau.—The fifteenth annual report of the Clayworking School, Laubau, has been published. There were 54 students in the winter term and 45 in the summer term. The head of the school, Mr. Albert Augustin, died in May, 1909. The school made several excursions to various clay plants, and also clay mines. A fourteen-day foreman course was held again this year, and 40 persons took part in this special instruction.—*Deut. Topf. & Z. Z.* No. 28, 1910.

Kiln for Burning Glazed Roofing Tiles.—The yearly production of a new plant will be between one and one and a half million roofing tiles, and for this purpose three or four periodical half muffle kilns will be sufficient. This style of kiln is very good for burning glazed ware, and also economical as regards coal consumption. The coal used in such kilns is about 600 pounds to every 1,000 roofing tiles. It must be taken in consideration that the tiles are glazed in a green state, and the temperature of finishing the kiln is between Seger Cones .08 and .07.—*Tonind Z.* No. 49, 1910.

Foreign Labor in Germany.—According to the new regulations which went into effect on April first, all persons who come into Germany for employment and have not secured an employer beforehand, are given an identification card which is good for ten days. When the person with such card obtains work, he has to turn the card over to the police, who will return same to the custom house people at the place at which the stranger came into Germany. Belgian labor has blue cards, while Denmark, Sweden and Norway labor is furnished brown cards.—*Tonind Z. Z.*, No. 38, 1910.

Bricks for Kiln Crowns.—It is often a big question with brickmakers what bricks should be used for the crowns of periodical and continuous kilns. A brick should be used for the crown which is a great deal more fire-resisting than the brick which are to be burnt. However, it does not follow from this that it is absolutely necessary to use fire brick in every instance. A brick which has its finishing point so high that it will not shrink any more nor soften at the temperature necessary to burn the kiln in question, is well adapted for kiln crown purposes. When the finishing temperature of the brick clay in question is about cone 010, it is a great squandering of money when fire brick are used for the crown. Fire brick are burnt between cone 10 and 12, and for the crown in question of a kiln where brick are burnt at cone

010, a brick which matures at a temperature between cone 03 and 1 would be amply sufficient for the crown of that kiln. Recently a brick with holes has been used for crown work with some success, as it has given the crown more radiating surface and the burning has been done more quickly.—*Deut. Topf. & Z. Z.*, No. 11, 1910.

Excursion of English Clayworkers to Germany.—The English brickmakers, mostly members of the Institute of British Clayworkers, visited Germany again this year the latter part of June. They left London on June 17 and arrived in Berlin on the 18th. They were present at the opening of the second Clay Industry Exposition at Berlin. The route which they followed included Dresden, Leipzig, Weimar, Erfurt, Zwickau, Nurnberg, Frankfurt, Mainz, Coblenz and Cologne.—*Deut. Topf. & Z. Z.* No. 34, 1910.

Porcelain Brick.—In the large potteries in Germany there is always a large accumulation of broken porcelain ware, either in biscuit or glazed state. There have been some attempts made to utilize this waste, but so far without much success. Mr. H. Eismann points out in a practical way how this material could be used for making porcelain brick, which would have a ready sale. He uses about 40% of burnt material and adds to this the other ingredients to make up the bodies.—*Keramische Rundschau* No. 16, 1910.

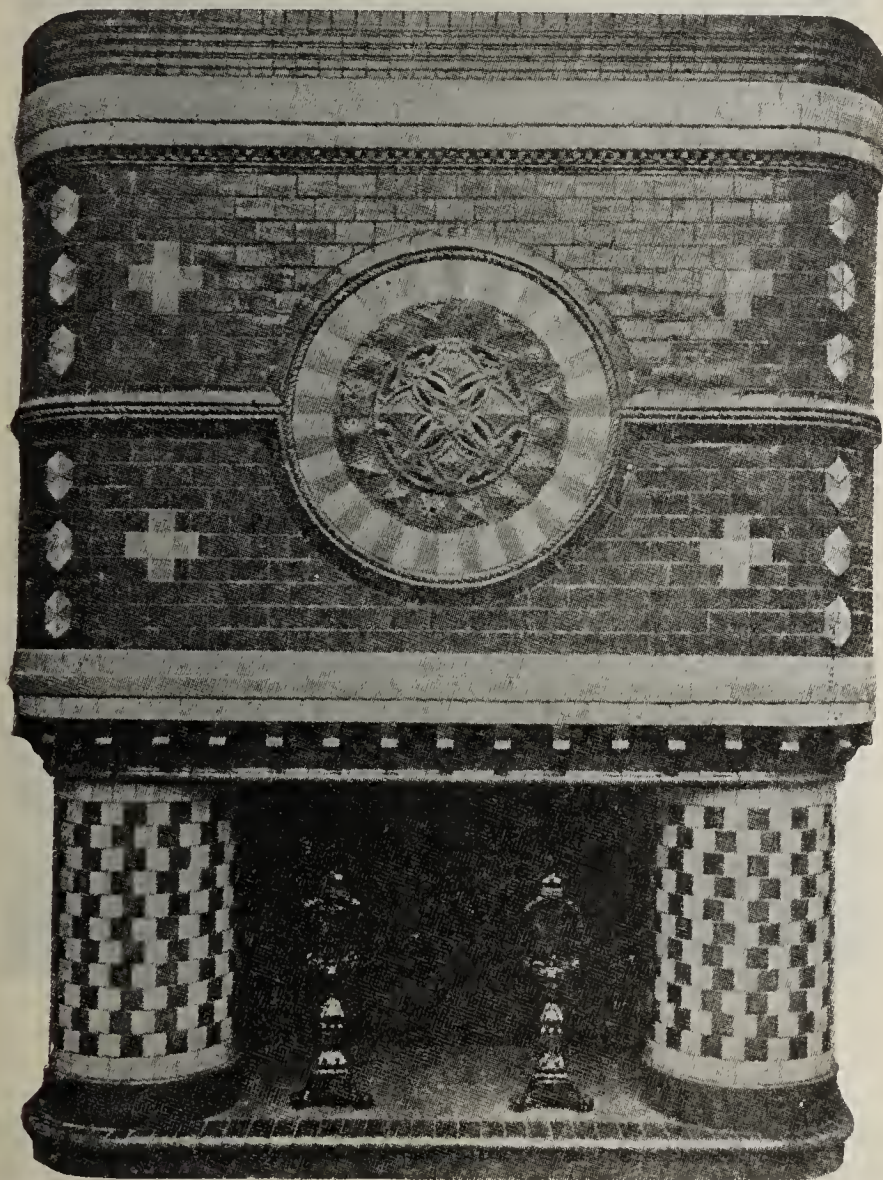
Sagger Mixtures.—In determining which clay is the best for the manufacturing of saggars, we find that there should not be too much fine sand in the mixture. It is advisable to screen out all the fine grog so that only coarse grog is left. If the clay is too sandy, then it should not be used for this purpose, as it will materially affect the life of the sagger. The clay should be well soaked and the grog should be wet when mixed. Saggars should also be burnt hard in the first burn, as they will then stand the handling better and are not as liable to breakage.—*Sprechsaal*, No. 10, 1910.

Melting Points of Glazes and the Richter Law Governing Same.—Dr. R. Rieke has made a series of experiments in the testing station of the Royal Porcelain Manufactory at Berlin in connection with the melting points of glazes as laid down by Richter. The article is very interesting, and points out that, while Richter was correct in his statements, they were not far-reaching enough in every respect. From the observations made it was found that the relationship between the chemical composition and the melting point is much more complicated than often supposed, and that in many compositions very varied results have been obtained.—*Sprechsaal* Nos. 15 and 16, 1910.

The Brick Industry in Belgium.—The most important place of the Belgium brick industry is in the county of Antwerpen, where at the place named "Boom" the principal brick yards are located. Belgium possesses still a large quantity of small open yards, while close in to the large cities we find power brick yards. After the county of Antwerpen, the county of Limberg, with the town of Campine, is the next of importance as far as the brick industry is concerned. At Boom there are burnt two kinds of brick, one called "Klampsteen," which is the common brick, while a better grade is called "Pampesteen." It takes from six to seven weeks to burn a kiln of brick. In Belgium blue brick are very much in demand, and they are obtained by closing the kiln after being finished with a large quantity of wood soaked with tar and left, the kiln cooled in that manner. The Boom brick measures $7 \times 3\frac{3}{8} \times 2\frac{1}{2}$, which is the smallest brick made in Belgium, while the brick made in Liege is $9\frac{3}{8} \times 4\frac{3}{8} \times 2\frac{1}{2}$. Many Belgium brick are shipped to Holland, so that the Boom size is equal to the Holland size. A great many plants are making face brick. All face bricks are well made, and very dense body. They

are either red or yellow, and combination of the two colors. Red face brick sells in Brussels from \$7.50 to \$10.50, and the buff brick from \$18 to \$25 per 1,000. Common brick sells for from \$2.50 to \$3.25. Roofing tiles are made in two different sizes, and sell accordingly. All brick yards in Belgium have made it a rule to have the Royal Testing Station at Malines test their materials, and in making sales these tests are adopted as standard. Red brick must have a crushing strength of 4,250 pounds per square inch, while the buff brick must stand 6,400 pounds. The freezing test is made by subjecting the brick for ten hours to a temperature of 4 degrees below zero, and to repeat this test fifteen times. For roofing tiles the carrying capacity is 1,300 pounds per square inch for unglazed tiles, while glazed roofing tiles will stand twice that amount. The Belgium testing station permits from 5 to 6% absorption in glazed brick, from 6 to 7% in unglazed brick, and for common brick from 10 to 11%. On account of the excellent clays which are found in the principal districts of Belgium, large quantities of brick are exported to England, France and Germany.—Tonwaaren Frabrikant No. 7, 1910.

Fire Front of Burnt Clay.—In an art exhibition recently held in Stockholm, the Hylinge Stenkols och Lerindustri



Fire Place of the Hylinge Coal and Clay Industry Co.

Aktiebolag (Hylinge Coal and Clay Industry Company) exhibited a fireplace which was made entirely of their clay products. The two round pilasters were made of brown and yellow square tiles; the course above the fireplace was made of brown glazed brick. The medallion was made of unglazed terra cotta. The dimensions of the fireplace are twelve feet high and nine feet wide.—Tonind. Z. No. 40, 1910.

Kiln for Burning Fire Clay Products.—The use of a continuous system of kilns with only four chambers cannot be recommended, and if a continuous kiln should be built, it must have at least twelve chambers to be economical in every

respect. If, however, a larger output is contemplated in the near future, six chambers could be built first and the balance later on. Every chamber should hold about 1,600 cubic feet of ware. The coal consumption per kiln is about 17 per cent. of the output, with a temperature of Cone 8 at the coolest and Cone 12 at the highest point in the kiln.—Tonind Z. No. 46, 1910.

Blue Underglaze Color for Stoneware.—Underglaze colors in blue which can be used with glazed ware are made as follows:

	Dark Blue.	Middle Blue.	Light Blue.
Sulphate of aluminum....	66.60	133.20	450.00
Sulphate of zinc.....	.....	43.10	140.00
Sulphate of cobalt.....	28.10	28.10	18.00

These ingredients are mixed, and calcined in high heat of the kiln, ground fine, and washed very thoroughly. For use there is added 5% of china clay and 10% of stoneware glaze.—Sprechsaal No. 16, 1910.

Sagger Manufacturing.—Many saggars show that they are unable to stand up in the burning all right, and they will fall to pieces on being burnt twice and oftener. The main cause is that there is used for the manufacturing of such saggars a fire clay which has a too low vitrification point, and when the saggars are used over and over again the body gets so tight that it will not stand any more heating processes. The regular method of using broken saggars again for grog is wrong, inasmuch as these broken saggars will tend to make the body closer, and also will crack more than new grog. In many plants crushed quartz is used for grog in saggars in large quantities. Lately raw kaolin is also used for grog purposes with good results. When saggars are broken, but still in such shape that they could be put together and still used again, a cement which will melt at a low heat is often used, and in that way the pieces will hold together. Such a cementing body is made of 65 per cent. of fire clay, 30 per cent. of feldspar and 5 per cent. of white lead. The mixture is mixed with waterglass, and will harden in a short time after being applied. It is advisable to place such broken saggars where they do not have to stand much pressure.—Tonind Z. No. 41, 1910.

Artificial Draft for Brick Kilns.—In a very interesting article about the difference between artificial draft in brick kilns in comparison with regular stacks, Mr. Johannes Peters gives his points of view in favor of the artificial draft. He gives a complete account of the different degrees of heat and the volume of air which the stack has to remove from the kiln, and compares these figures with a draft generated by a fan driven by electric current. To give a financial comparison, he estimates that the stack will cost 5,000 marks, while the fan installation will cost 4,000 marks. The difference in the cost of operating the stack and the fan per day is as follows:

Operating cost of the brick stack:	
Additional cost in power required as figured above	17.10 marks
Depreciation	.40
Interest	.70
Oil and other expenses.....	...
	18.20 marks

Operating cost of fan installation:	
Cost of power required as figured above.....	5.76 marks
Depreciation	.56
Interest	.56
Oil and other expenses.....	...
	7.08 marks

This gives a difference of 11.12 marks per day in favor of the artificial draft, or a saving in favor of this system of \$4,000 per year.—Deut. Topf. & Z. Z. No. 30, 1910.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE TWIN CITIES AND THE NORTHWEST.



THE USUAL MIDSUMMER subsidence of the building rush is at hand, and in some respects it is accentuated by the crop damage which seems to have been sustained through the Northwest. Crop scares are always viewed with suspicion, as it has not been unknown for the more or less guileless speculator to discover during the summer a crop damage which did not appear when the harvest was at hand. But this crop damage seems to be well established—too well for comfort. A portion of North Dakota will have a shortened crop. Some of South Dakota and some of Minnesota will also have a shortened crop, although all still have some chance of an improvement over conditions at this writing, should there be rains and favoring weather during the remainder of the growing period.

In the meantime new projects are lessened, and there is not so much chance being taken as might otherwise be the case. The reports from architects of new work has dropped down from a few weeks ago, and it is hardly to be expected that there will be any great revival until it is ascertained that there will be a better crop than present reports indicate.

Even under the present circumstances the year will doubtless show up very well in totals. There has been a good volume of work projected and started, and the totals are running ahead of a year ago. Considerable work of volume has been started, which will be carried through unless something exceptionally serious intervenes.

The brick trade has enjoyed an excellent demand during the early months. Common brick was scarce until well into June, because of the peculiar weather, which prevented an early start being made in the new season, while the demand used up the stock carried over. Premium prices were being paid for a time, until the new stock became available, and prices eased off to normal. At that, prices are being maintained on a better basis than has been the case in past years. The stronger market and the tendency to advance has finally reached the common brick trade.

Pressed and ornamental brick have been in excellent demand. There has been much more ornamental brick used this season than last, and the number of especially attractive buildings which call for ornamental brick for decorating the exterior, if not for the whole exterior, is increasing. People are beginning to realize that for genuine ornament there is nothing that excels some of the different forms of brick. Even with concrete receiving a big attention, there is also a demand for brick for the exterior walls. The most rabid concrete exponent can hardly endorse the appearance of his favorite construction as compared with the many forms of brick and clay wares.

The brick kilns at the Minneapolis city workhouse were started early in June, and it is expected to manufacture 3,500,000 brick during the season. The superintendent expects to sell 2,500,000 of them, and the remainder will be used in the construction of a hospital building upon the workhouse grounds.

The Johnson, Jackson & Corning Company, of Minneapolis and St. Paul, recently booked an order for 720,000 salt-glazed Sparta brick for the Minnesota State prison at Stillwater, Minn. The order amounts to eighty carloads. The bricks are to be used in the interior corridors, cells, etc., of the prison. The company also received the contract for 2,000 squares of red tile roofing for the Stillwater prison, amounting to seventy carloads. This is said to be the largest order for roofing ever placed in the Northwest. Harold Johnson, of this company, as representative of the National Fireproofing Company, of Chicago, also booked the order for all the hollow tile partitions for the new twelve-story Plymouth building,

being erected in Minneapolis, amounting to 250,000 square feet, or about sixty carloads. These orders total 210 carloads.

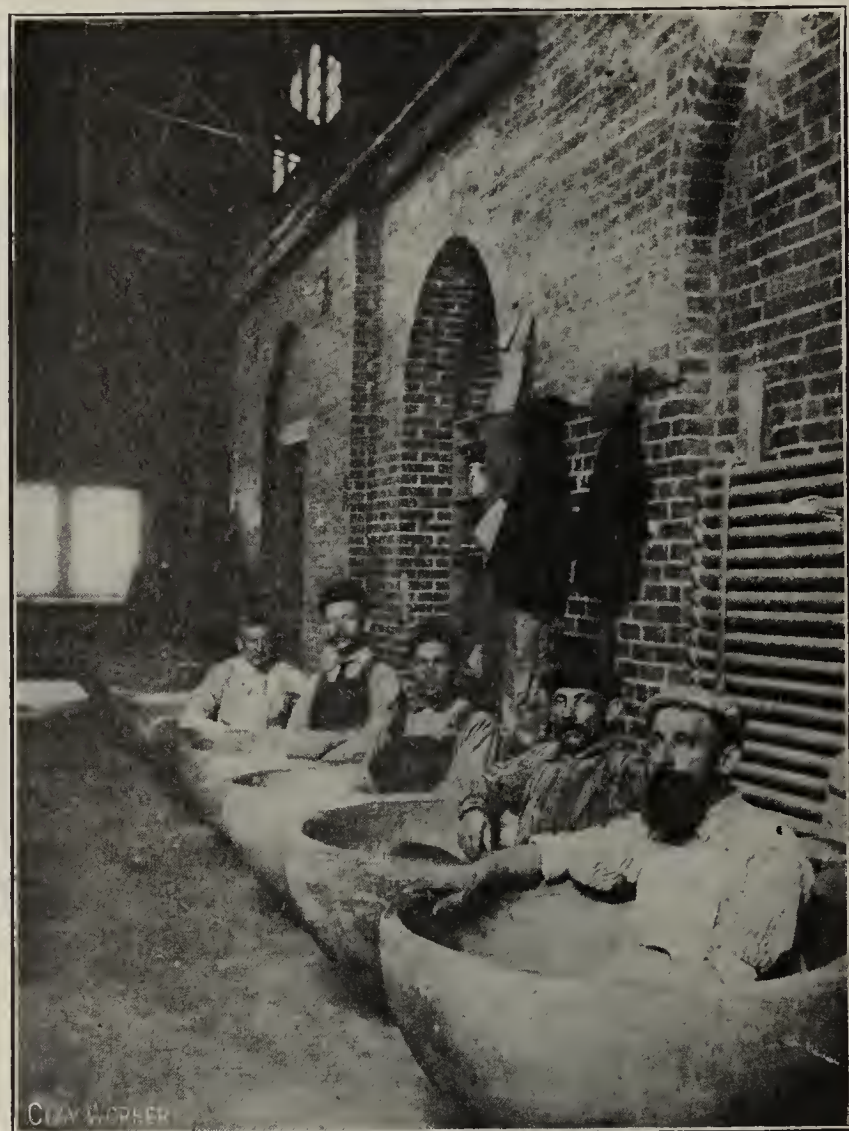
JOBS THAT CALL FOR BRICK.

B. Aronson, of Minneapolis, received the general contract for the addition to the Clay school building in Minneapolis, at \$27,944.

The Twin City Rapid Transit Company, which owns the entire street railway system in Minneapolis and St. Paul, has started work for the construction of brick car shops at Lake street and Twenty-first avenue South, to cost \$70,000.

The W. J. Hoy Construction Company, of St. Paul, has the general contract for the erection of an addition to the main exchange building of the Northwestern Telephone Exchange Company at Fifth and Cedar streets, St. Paul. Cost, about \$85,000.

T. F. Curtis, of Minneapolis, and Frank Mackey, of London, Eng., are considering the erection of a twelve-story



Some Remarkable Pottery—Made by the Van Briggles Pottery Company.

family hotel building at Third avenue South and Tenth street, in Minneapolis, to be 135x330 feet in size, with brick exterior walls. Cost, \$1,200,000.

T. F. Curtis has had work started for a three-story brick addition to his hotel building at Third avenue South and Eleventh street, Minneapolis. It will be 80x105, brick construction. Cost, \$70,000.

Pike & Cook were awarded the general contract for the erection of the building for the Church of the Incarnation (Roman Catholic), at Thirty-eighth street and Pleasant avenue, Minneapolis. Cost, about \$50,000. Bertrand & Chamberlin, architects, Minneapolis.

The Hotel Dyckman, of Minneapolis, has arranged to have an addition built to the building when present leases on adjoining structures expire, which will allow an extension of over 200 rooms. The building is of white enameled brick exterior walls.

The Empress Theater will be erected in St. Paul on a site

in the middle of the block between Wabasha and St. Peter and Ninth and Exchange streets. There will be an arcade cut through the block, with an entrance from Wabasha street and two from St. Peter street. The theater will be 100x110 feet in size. Cost, \$80,000. Buechner & Orth, architects, St. Paul.

The Minneapolis Transfer and Storage Company will erect a six-story building for storage use at Twenty-ninth street and Girard avenue South. It will have brick exterior walls. Cost, \$90,000. Downs & Eads, of Minneapolis, are the architects.

Henry E. Green, architect, of St. Paul, has prepared plans for a theater building to be erected at Crookston, Minn., by A. J. Van Wie and Theodore Hays, of Minneapolis. It will be two stories and basement, of tapestried brick, Bedford cut stone trimmings, modern throughout. Cost, \$40,000.

Kees & Colburn, architects, of Minneapolis, are about completing the plans for the new Lowry Arcade to be erected at

is covered up and not subject to inspection. Only the working of the drain after the professional has been paid and is gone perhaps, tells the true story of efficiency or want of efficiency. Our advice to all is, as far as possible they should inform themselves as to the important points to be looked after in the construction of a drain. We mention the outlet should be located where it will afford a free flow of the water away from the drain and should be located where it economizes the work and adds to the efficiency of the drainage. The perfect grading of the drain, with sufficient depth to secure the best results for the money and labor expended; the laying of the tile so as to minimize the friction in the flow of the water in the drain and at the same time secure the tile firmly in their position in the drain; the filling of the drain, and so on. If those directly interested will see to it that every tile is laid as it should be and stand by the gun until it is well done, all the better. The writer has employed men who knew how to dig a ditch and level it, but we have laid our own tile, as a rule, for two reasons, one of which is that if the work is well done it is good for a lifetime; for another reason, if there are imperfections in grading the drain I will find it and have it corrected—then I know it is well done. Again, I advise that too much confidence should not be put in the professional ditcher—don't trust the work to others until you have proved their reliability.

SOME REMARKABLE POTTERY.

AS SEEN by the accompanying illustrations, the Van Briggles Pottery Company, of Colorado Springs, Col., has recently turned out some very unique ceramic ware which is quite unusual in the clay line, and will perhaps prove an excellent investment for the Congress Hotel Company, the purchasers. The order was for garden pots or urns, 37 inches in diameter, and weighing 280 pounds apiece, with holes in the bottom for the admission of steam pipes and electric wiring.

The intention of the architects, Cooper & Robertson, who suggested this novel bit of advertising scheme for the Congress Hotel, is to place the pots or bowls along the edge of the roof of the hotel building and have them lighted by means of a large electric light placed just above the top of each bowl, and a jet of live steam allowed to rise around it, the lights to illuminate the steam and bowls in such a manner that from the street below they will appear to contain a boiling liquid and look like boiling cauldrons at night.

The building proper is in mission style, done in concrete, and the pots or bowls are roughly finished to fit in with the building proper, so that they add an interesting tone to the building during the day and present an unusually attractive appearance at night.

Since the pots or bowls weigh 280 pounds each in their green state, and are pressed in one piece, they were not very easy to handle in the making. This can be readily realized when one is informed that the ordinary pot made by this company weighs less than a pound.

Another side line of the Van Briggles Pottery Company is the furnishing of tile for entrances and fronts of hotel and store buildings. They have been doing a large business in this line, and have received many flattering compliments for their excellent workmanship and high artistic taste.

The main business of the company, however, is in the manufacture of pottery. The distinctive shapes and unusual colorings of their ware puts it in a class easily distinguishable from other ceramic products. They employ solid glazes for the most part in the decoration of their ware, various tints of green being the favorite color employed, although their orange, purples and azure blue glazes are unusual and pleasing. Nearly all the glazed ware is modeled in high relief in designs which are conventionalized wild flowers and other characteristic designs of the Western country. Their pottery in blues, pinks and whites, as well as the darker and more common colors, is generally familiar to the public. The company has been engaged in the manufacture of matt glaze and pottery since 1900.



One of the 280-Pound Urns Made for the Congress Hotel.

Fourth street, from Wabasha to St. Peter streets, in St. Paul. It will be 50x300, seven stories, with foundations for twelve stories, pressed brick and terra cotta walls. Cost, \$750,000.

Butler Brothers, of St. Paul, have started work for the erection of a wholesale warehouse at Fillmore street, between Hyde and Water, West Side, for Farwell, Ozmun, Kirk & Co., St. Paul, wholesale hardware. It will be 106x300, brick walls. Cost, \$150,000. T. WIN.

THE PROFESSIONAL DITCHER.

We hear it frequently stated that those who have had but little experience in the construction of tile drains should by all means secure the services of a professional ditcher. And we have met quite a number of professional ditchers, or at least they claimed to know all about tile ditching; yes, sir-ee, all that any one needed to know; could do the work perfectly, but we have found that many of them need watching, especially those who know so much. Remember that their work

REMINISCENCES OF TILE DRAINAGE AND DRAIN TILE MACHINES.

Written for The Clay-Worker by George S. Tiffany.

A DOWN DELIVERY TILE MACHINE.

The installing of the tile machine and conversations with the manager made me acquainted with the company's needs, and I made drawings of a sewer pipe machine which would be called a down delivery tile machine. These drawings were shown to the officers of the company in their Chicago office. Mr. Farwell, secretary, speaking for the company, said: "Mr. Tiffany, we want you to go into Gates' machine shop, build the machine, take it to Joliet, set it up and operate it. We will pay all expenses; you will only lose your time. If it's a success, we want the right to the state of Illinois, and if it's a failure, well, we will pay your fare home." That was a generous offer, and most graciously made, but we could not accept it. Returning to Michigan, we interviewed Mr. Horace Brewer, told him of the offer of the Joliet Mound Company, and said: "Mr. Brewer, if you will make me one of those machines I will give you the right to the State of Michigan." He replied: "Well, I don't know. Mr. Potter"—addressing the pattern maker—"take these drawings and make the patterns." Then, turning to me, he said: "George, you can have anything you want," and went out.

This reminds me of a call a cousin of mine made on our dear old grandmother. He congratulated her on the great number of her descendants, all of whom loved her, and on her remarkable health and strength at her age. And she said: "Yes, Gain, I can say with the Psalmist, 'I have been young and now am old, yet have I not seen the righteous forsaken or his seed begging bread.'" This was leading the conversation into rather unfamiliar lines of thought, but Gain did not falter, and responded: "Yes, grandma, I never knew the words of that good old hymn to fail:

"The Lord is our Shepherd,
Our guardian and guide;
Whatever we'll pay for
He'll surely provide."

Perhaps Mr. Brewer wished to test my faith in my plans. The work went forward to a finish, and I had come to take the machine to Adrian, set it on Sword Brothers' yard and test it. Mr. Brewer invited me to dine with him, and on the way I said: "Mr. Brewer, you never told me that you would accept my offer. I think you should decide before I test the machine." He replied: "Well, I don't know," and I answered: "Then I will pay you for the machine."

The machine worked successfully on second trial. I went to Chicago, called on the Joliet Mound Company, and suggested that they send some one to Adrian to see the machine work. They chose Judge Farwell and Mr. Philip Thurber. I met them in Adrian and exhibited the machine making twelve-inch tile. Then, taking everything away from below the machine, I molded a pipe with nothing but my hands to steady and support it, until it was about four inches from the ground, when it broke away from the die and dropped to the ground. The pipe was straight and smooth, and was about five feet eight inches high.

"That's all right; that is perfectly satisfactory," said Judge Farwell. "We are going to the hotel. Will you come there soon?"

I cleaned my clothes and hands and walked there alone. On my way I said to myself: These men will want to buy the right to the State of Illinois. What shall I ask for it? Three thousand dollars. They may hesitate and say the machine has not been very thoroughly tried, etc. This I must admit. Then I will say: "Gentlemen, if you prefer to buy it on trial, I will set the machine in your factory. We will run it for thirty hours, where all conditions are favorable; we will make 12-inch pipe, and you shall pay me one dollar, the list price in Chicago, for every foot of pipe made, and you can have the machine and right to the State of Illinois." I had no chance to make the trial offer. As soon as I had named my price

Judge Farwell took a sheet of folded note paper, opened it, wrote a memorandum of agreement on each leaf, signed both for the company, and I signed both. He tore the sheet apart and gave me a copy. Suppose they had preferred the trial offer. What would have been the result? The machine frequently made 180 feet of 12-inch pipe in an hour, which at one dollar a foot in thirty hours would have amounted to \$5,400.

How often do you hear men say, with voice and manner most profound: "Figures don't lie." That is true, but they are the most deceptive things in the world. Estimates of the profits of a business often illustrate the saying "A little learning is a dangerous thing." For instance, let us run this little machine one year, or 300 work days. Figures would show that we would make \$540,000 worth of pipe. Gee whiz! Isn't that a get-rich-quick scheme? But what would they cost? Solomon, with all his wisdom, could not tell you. Every one makes estimates, but the real and solemn fact is this: No one but an expert of long practice can make reliable estimates of the profits of a business—and don't we know?

"We have ventured,
Like little wanton boys that swim on bladders,
These many summers in a sea of glory."

In June issue we showed a copy of the patent drawings, some features which we believe have not been equalled. The machine is entitled "tile machine" in the drawing, but in the specifications "machine for making sewer pipe." We believe that it was the first down delivery tile machine of the propeller type made. While this type of machine is considered a late production, the reader will notice that this patent expired thirty-two years ago. If you are disposed to copy, no one can prevent you, and this will be true of any machine described in these articles, which are not written to advertise any machine or any business, but to set forth the early history of clayworking machinery in this country, so far as personally known to the writer, and for the good of the trade.

This patent shows the first use of the hollow pug mill shaft, a feature by many considered a great fault and by many an improvement of great merit. Of this we will speak hereafter, but for the present simply admit in regard to the machine, in the words of one of the poet Burns' characters in speaking of an object of even divine workmanship:

"True it is she had one failing—
Had a woman ever less?"

The machine was designed to make pipe as large as 20 inches diameter. We will describe only the molding device, which we believe is better adapted to the purpose than any of later date. The propeller L is attached to the mill shaft D, and the propeller P to the central shaft K. They turn in opposite directions. The propeller P has on its under side—Fig. 3—a circular flange, which is fitted to and covers the top of the core K, and on its upper side—Fig. 4—vertical flanges, S S S. The propeller L forces the clay down onto propeller P, which is of less pitch but higher motion. The vertical curved flanges force it outward beyond the circular flange, where it is caught by the spiral flange V V V and pushed down between the core R and funnel G, forming the pipe. The pressure being confined to an annular space about three times the sectional area of the pipe, and is in some degree counterbalanced by the pressure of propeller L. The tile machine and the sewer pipe machine retained the original forms until the winter of 1868-69, when they were remodeled under my personal directions.

That they were successful is attested by a letter of Judge Farwell, dated June 2, 1866, of which I give a transcript of the closing words, and while doing so I wish to testify that his kindness was an inspiration to effort for many years, and also that his services to the Joliet Mound Company have been of incalculable benefit to the State of Illinois:

"We deem our exclusive right to the State of Illinois as of great value to us, and would rather buy more than sell anything that we have. Very respectfully,

"Your friend and obt. servant,
WM. W. FARWELL."



FILLING THE TRENCHES.

No substances subject to decay should be placed next to the tiles, such as straw, grass or sods. If these are used, the soil or dirt will not fit closely around the tiles, and water channels are likely to form and carry much fine earth into the tiles. Good stiff clay is the best substance to place upon and around the newly laid tiles. The clay should be thrown into the trench gently, and shoveled so as to settle evenly around the tile, and occasionally it will be best to press the clay around the tile, to be sure that no large spaces are left near the tile that will likely aid in forming water ways along on the sides of the tile drain. Do not tramp on the clay when you begin to fill the trenches; if so, the tramping is likely to displace or force the tile out of line, which seriously interferes with the efficiency of the drain. No tramping should be done until the trench is nearly half filled. Then the tramping may begin, and even then care needs to be exercised that the tramping is not too much on one side, for fear that the tiles be partially displaced or forced out of line.

After the tiles are fully secured in position, the earth in the trench can hardly be made too firm. Much less fine earth will find its way into the drain from a well-compacted covering than when the earth is loosely thrown in. Besides, when the earth is thrown in loosely, little waterways are more likely to form along the tiles, which is more likely to be where the drains have considerable fall and the water runs with greater rapidity in the drain. When the filling of the trench is done with loose earth, the settle will be so considerable that it will leave a depression resembling a furrow in the field. In some instances we have seen the heavy rains do much damage to the drains.

After half or more of the trench has been filled and firmed or tramped, the remainder of the work may be done rapidly with a team of horses and plow, by using a long double-tree, turning the furrows toward the trenches. Then with a harrow and a heavy roller the work may be completed satisfactorily, leaving the surface comparatively smooth, but along the line of the drain the surface should be a few inches higher, sufficient to shed the water to the sides.

SOME INDICATIONS OF THE NEED OF DRAINAGE.

Are there pools of standing water on the surface of the land for a day or more after a heavy rainfall? If so, the land needs to be underdrained. All land not readily freed from standing water a few hours after a heavy rainfall needs to be tile drained.

If there are small or large areas of land in the cultivated fields that remain damp or sodden some time after rains have ceased to fall, they need to be tile drained.

If there are places in your cultivated land that are too wet to plow when a large portion of the land is dry enough to plow, such places have standing water in the soil or near the surface and need underdraining. If the soil cracks badly in dry weather, such land needs to be underdrained.

Land in cultivation, when in growing corn, the leaves of the corn get yellow in wet weather or curl easily in dry weather, the land needs to be underdrained.

Soils which, when in grass, are likely to have wire grass and water grasses mixed through the tame grass, and in

places grows more wet grasses than tame grass, in such land the need of underdraining is very marked. There are many thousands of acres of pasture land that need to be tile drained.

There are other indications of the need of drainage, such as a clammy or cold condition of the soil, or sticky when wet or cloddy when dry (if it is being cultivated) or soils which are tenacious—hard to cultivate—such soils need to be underdrained.

SOME DRAINAGE ADVANTAGES.

Plowing may be done from a week to ten days earlier in the spring; tile drained land is half manured. Although open drains do good service where tile drains can not be made, their disadvantages are great; with tile drains the water will soon disappear from the surface after a rain, while with an open ditch it will stand outside of the bank for several days; you can farm and grow the best of crops over tile drains, while an open ditch is waste land for weeds to grow on; you never need to clean a tile drain if it has been properly laid, but you must clean out an open ditch every two or three years; the open ditches harbor vermin, such as muskrats and the mink; they dig holes along the banks for the horses and cattle to step in and possibly injure them. The tile drain will not harbor anything and gives you no trouble if there is a screen over the outlet. Then, in the use of farm machinery the tile drain is not in the way; all of the land is available for agricultural uses, and speed in the cultivation of the crops or the harvesting of them.

IMPORTANT DRAINAGE WORK.

The drainage of a large area of land in southeast Missouri, thus reclaiming some of the best land for agricultural uses on the continent, has done much to emphasize the importance of reclaiming our swamp and low-lying bottom lands. There are large areas of low, wet alluvial lands in Arkansas, Louisiana, Mississippi and other States along the Ohio, Missouri and Mississippi rivers and their tributaries that, when reclaimed by drainage, will add millions of wealth to the productive interests of the country. In reclaiming these lands much dredging will have to be done, miles upon miles of open ditches will have to be dug, and many more miles of tile drains will have to be laid to complete the work.

We hear much talk of conserving our natural resources, which is thought to be a question of national importance, and so it is, in the main. But the conservation of the millions of acres of swamp and low bottom lands has gone on about long enough. It is high time to levee these bottom lands and drain them, and make it possible to bring them into a high state of cultivation. They would add much to the increase of agricultural products and the export balance in our favor in the world trade. In two or three years the Panama canal will be open to the commerce of the world, and these now waste lands, if brought into cultivation, will do very much to increase our export trade and add to the general prosperity.

It is true, no doubt, that Congress, in the past, has again and again voted appropriations to the improvement of rivers and harbors, and the money thus voted was not expended wisely. It would be better, we think, to look sharply to the reclaiming of the low lands, especially of the Mississippi valley, and it would be as famous for its productions as is the valley of the Nile. Much emphasis is being put upon the irrigation of Western lands, and irrigation is doing a great public service, but we think a like expenditure of money and labor wisely to reclaim our rich lands from too much water will accomplish more, dollar for dollar, in promoting the health and adding to the wealth and general prosperity of the country than is realized from like investments in irrigation.

When we get overburned by our desires it brings out some streaks that neither look well nor wear well.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



LOCAL JOBBERS of brick, who depend upon the Kansas gas belt plants for their supply, report that the bottom has dropped out of their market during the past month. They say that the plants are still producing a good many more than they are selling, and that they are very anxious to get rid of their surplus; at the same time they are not willing to sell to the jobber so he can make any profit on the brick, preferring to go over his head in this city and quote prices direct to the contractors. Whether the brick manufacturers will make anything at this remains to be seen. One thing is certain: they are succeeding in demoralizing brick prices here, even though they may not be selling all the brick they want to. A good many sales are reported as having been made at \$3.75 at the plants, making the delivered price from \$6 to \$6.25 on board cars in Kansas City,



Figure 1.

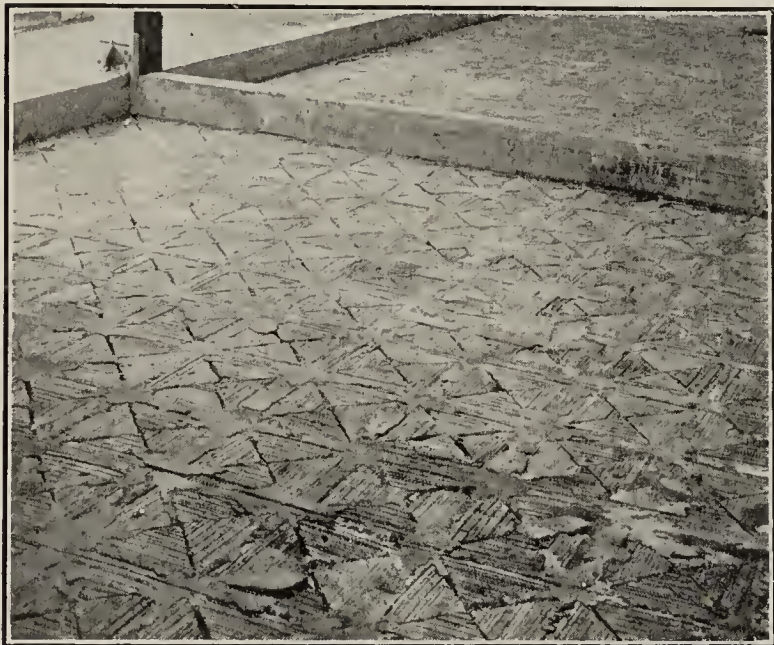


Figure 2.

the contractor paying for his own delivery from cars to the job. This does not leave much for the manufacturer, and worse than nothing for those who are not so situated that they can make brick very cheap. Reports indicate that some of the gas belt yards will close down, as they would rather let the plant lay idle than run at a loss, and they cannot see any profit in brick at \$3.75.

The Kansas City plants, of course, have the advantage of the freight over the Kansas plants, and while it costs them more to manufacture the brick, there is a good deal longer profit possible to them in the local field. This places them in a position to lower their prices and keep out all Kansas brick at anything like a profit to the producers, if they see fit, and the inclination seems to be in that direction. They are evidently going to protect their own plants from outside competition as much as possible, so they can continue to run at full capacity, which they are doing at the present time, and with very little accumulation.

It was hoped by the brick manufacturers here that the

terminal company would get busy early this spring developing its property, making ready for the new union depot, and if this had been done it would have influenced a large amount of building, and conditions would have been different. As operations in this direction are dragging along at a very slow rate, merely enough being done to keep down protest against the slowness of the work, it has not encouraged others to build, as they feel that it will take about three years for the depot to be finished after it is begun, and they will have plenty of time to complete their buildings even if they are begun some time after the depot is started.

The continuous rains of the latter part of May and first part of June caused all kinds of business to be dull, and that also caused a good many building projects of various kinds to be dropped for the time being, a feeling being extant to the effect that there would be lower prices on building material if a wait was made for the start, and if everybody waits it is likely that this will be a fact. The worst trouble with this reducing of prices is the fact that brick, which has never been selling for an unreasonable price, is the first to be cut, while other lines of building material, which have been pushed up out of reason, are making but slight reductions, if any, and

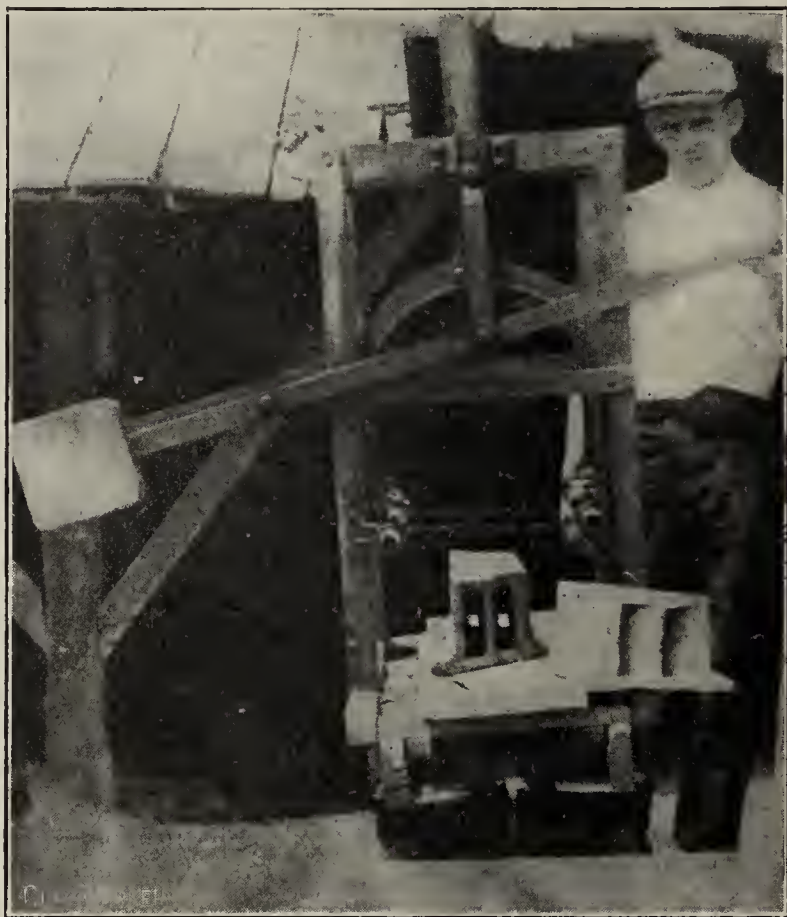


Figure 3.

are really doing nothing to encourage building operations under present circumstances.

The building permits for the month of June in this city amounted to \$869,955, and of this amount \$315,800 was for brick buildings, and in Kansas City, Kas., the permits for the same month amounted to \$159,162. The permits in Kansas City, Kas., were about double the normal amount, owing to the fact that permits were included for part of the rebuilding of a big soap factory which was recently destroyed by fire.

According to the reports coming in from country towns, there is nothing doing in the way of brick sales, the only demand being for the local patchwork, as the farmers are not buying any kind of building material at this time, being so busy with their crops. The crops are looking good, however, and there is every indication that business will be exceptionally good in the smaller towns during the fall months, when most of the country building is done. Brick men are figuring on placing a good many cars at small points, and have been trying it during the past month, but the dealers are said to be absolutely refusing to stock up the least bit above present

needs just at this time. In fact, it is said that all of them seem to feel that it is dangerous to buy ahead at present prices, as they feel that there is but little chance for prices to go higher at this time, and a good many chances for them to go lower, and as they do not need building material, they are just holding off until their building season is at hand before ordering.

K. A. W.

Written for THE CLAY-WORKER.

A NEW FLOOR CONSTRUCTION.

The Burchartz American System of long span, crosswise, reinforced, fireproof floors, a combination of reinforced concrete and hollow tile floor construction which combines the advantages of both materials and at the same time avoids their disadvantages, is a system of construction that satisfies the believers in hollow tile, the believers in reinforced concrete and the public, because it is cheaper and more practical than either pure hollow tile or concrete. It has been felt that it is necessary to use tile or some other kind of filling in long-span constructions in order to get the depth without increasing the dead load too much. Now, in a crosswise rein-



Figure 4.

forced slab the reinforcing rods must run in both directions, which means that all the joints between the blocks must be, say, three inches wide. If the ordinary tile were used, the channels of which are open at both ends, the concrete, which is grouted in, would fill these blocks. This would increase the cost and the weight of the floor without adding to its strength.

Various attempts to use ordinary hollow tile, the channels of which were closed with pasteboards, etc., have been made. However, they have not been successful.

After much study of the subject, the writer has found a practical solution of the problem. By cutting a block of a convenient section at an angle of 45 degrees instead of square, and by assembling four of these wedge-shaped pieces, we get a block which is closed all around, and thus makes a substantial and excellent block for crosswise reinforced floor slabs.

Fig. 1 shows the wedge-shaped pieces and a complete 12x12x7-inch block. The blocks may be made of any required shape and depth. The flanges at the foot of the block serve to space the blocks accurately, and they form a ceiling which

is all terra cotta. This is very desirable for plastering and fireproofing.

Fig. 2 is a photo showing the floor from below. Note that the ceiling is all terra cotta; plastering adheres well to it.

Fig. 3 is a side elevation and Fig. 4 an end elevation of the cutting table introduced by Messrs. C. W. Boynton, Inc., of Sewaren, N. J., for cutting the Burchartz blocks.

The construction of this table is simple. The frame which holds the wires moves up and down vertically.

There are spiral springs at the corners of the frame for the purpose of pulling the latter up again after it has been pressed down for cutting the clay.

By means of the adjustable counterweight the frame can be balanced in such a perfect way that the operation of cutting is made easier even than it is with the ordinary cutter.

Fig. 5 shows blocks and steel rods on the centering ready for concreting. The concrete is just grouted in—again a very simple and inexpensive operation.

Fig. 6 represents the load test made in the new Lafayette Street School of Newark, N. J., as required by the Board of Education. This test was by no means a severe one, but there being not the slightest deflection, and the contractors being pressed for time, it was discontinued at that point. It was also known that in the course of construction about 15



Figure 5.

tons of structural iron had been placed on one of the slabs of 25x25 feet clear span without deforming it in the least. Said slab was then only ten days old. All the centers had been stuck in from five to seven days after the slab had been laid. (This was made possible by the high temperature prevailing, which made the cement set very quickly.) In consideration of these facts the Board of Education declared itself entirely satisfied with the construction, and accepted it.

The work was executed by the well-known firm of V. J. Hedden & Sons Company, Metropolitan Tower, New York, N. Y.

The Burchartz System floors in the above mentioned building were 15 per cent. cheaper than the lowest bid on other systems.

Summing up, the system is very recommendable as an American long-span fireproof floor construction.

The writer must express his gratitude toward the firm of C. W. Boynton, Inc., Sewaren, N. J., who undertook the manufacturing of the Burchartz blocks, finding it worth while to construct a very ingenious and practical cutting table. The outcome was that the manufacturing of the blocks is the most simple affair. The Eastern factories may now look upon these facts, resulting in the unconditional acceptance of a practical

fireproof floor construction by eminent engineers and architects and the public, and which in due time will take its way westward.

P. BURCHARTZ.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF TOLEDO AND NORTH-WESTERN OHIO.



THE PROPOSITION which is holding the attention of Toledo brick manufacturers just now to the exclusion of most other things is labor. It is next to impossible to get anything like an adequate number of men to operate the various brick plants, and it is no uncommon thing for a plant to be closed down for a day or two, owing to the scarcity of men to do the work. "We almost

is listed at from 50 cents to \$1 higher than the prices of last season. Here again Toledo is far from being in the lead, a number of large contracts having been let here for other varieties of paving. The laxity here, however, is more than made up by the brisk demand from all over the State, and in fact from all over the country.

An industrial building, to be eight stories high and to cost \$200,000, where small manufacturing industries can secure the best of facilities, including power for the development of their business, is the latest Toledo project. This has been under consideration for some time, and a syndicate is being organized for the purpose of building the structure. Preliminary sketches of the building are being made. It will be eight stories high, 100x300 feet in dimensions, will be of fireproof construction, and will cost not less than \$200,000 nor more than \$300,000. The building will contain 30,000 square feet of floor space to each floor, or a total of 240,000 feet of floor space. It will be centrally located, and a site is now being sought. The building will have its own power plant, and will furnish power to every industry it houses. It will also have the best of railroad facilities and every other convenience of the up-to-date manufacturing plant.

Because the bids submitted for the two large high school buildings to be constructed in Toledo were too high, the Board of Education rejected all bids and will readvertise the work. According to the lowest bids opened, the buildings will cost \$700,000, while the bonds issued were for but \$500,000. John Pioch was the lowest bidder on the West Side building. His figures are \$343,587. The lowest bid on the East Side building was that of M. Rabbitt & Sons, at \$369,993. Other bidders were A. Bentley & Sons, Henry J. Speiker & Co. and William J. Spear, all Toledoans. Considerable terra cotta was to have been used in the buildings as planned, and it is hinted that there is a terra cotta pool. One of the members of the Board of Education recently gave out the following interview: "We would prefer to see some Toledo contractor get the jobs, and thus keep the money at home. However, some of us believe that we can get the figures lowered by at least \$100,000 if we advertise more extensively next time."

An echo from the days of "trust-busting" Prosecutor Wachenheimer was heard in Common Pleas Court this week when the case of Frank Gorman, one of the indicted brick men for alleged violation of the Valentine anti-trust law, was reversed. Gorman appealed on the ground that the court had no jurisdiction to impose a fine of \$1,000. Gorman was one of the nine brick men who pleaded guilty to being in a combine for the restraint of trade. The Circuit Court's finding means that Gorman's case is back to the lower court for retrial. Prosecutor Webster has not yet decided what action his department will take in regard to the matter.

Five of the nineteen bids received by the city clerk of Wapakoneta for the paving of Willipie street in that city were submitted by Toledo contractors. Engineer George E. Champe, who is in charge of the work, is also a Toledo man. The letting of the contract was postponed until June 30, and in the meantime members of the Wapakoneta council will visit Toledo and other cities to investigate the various paving materials used.

The board of trustees of the Lima State Hospital for Criminal Insane met at Columbus a few days ago, in the governor's office, and inspected the plans of Architect Frank L. Packard for \$350,000 worth of buildings and other improvements. With a few minor changes the plans were approved and the work advertised for. A number of Toledo contractors will bid on the work.

T. O. D.

That night telegraph letter business is a good thing that shows what can be done with live competition in the transmission of messages, and the exorbitant express charges on sample brick and things show what will be done when competition is practically eliminated.

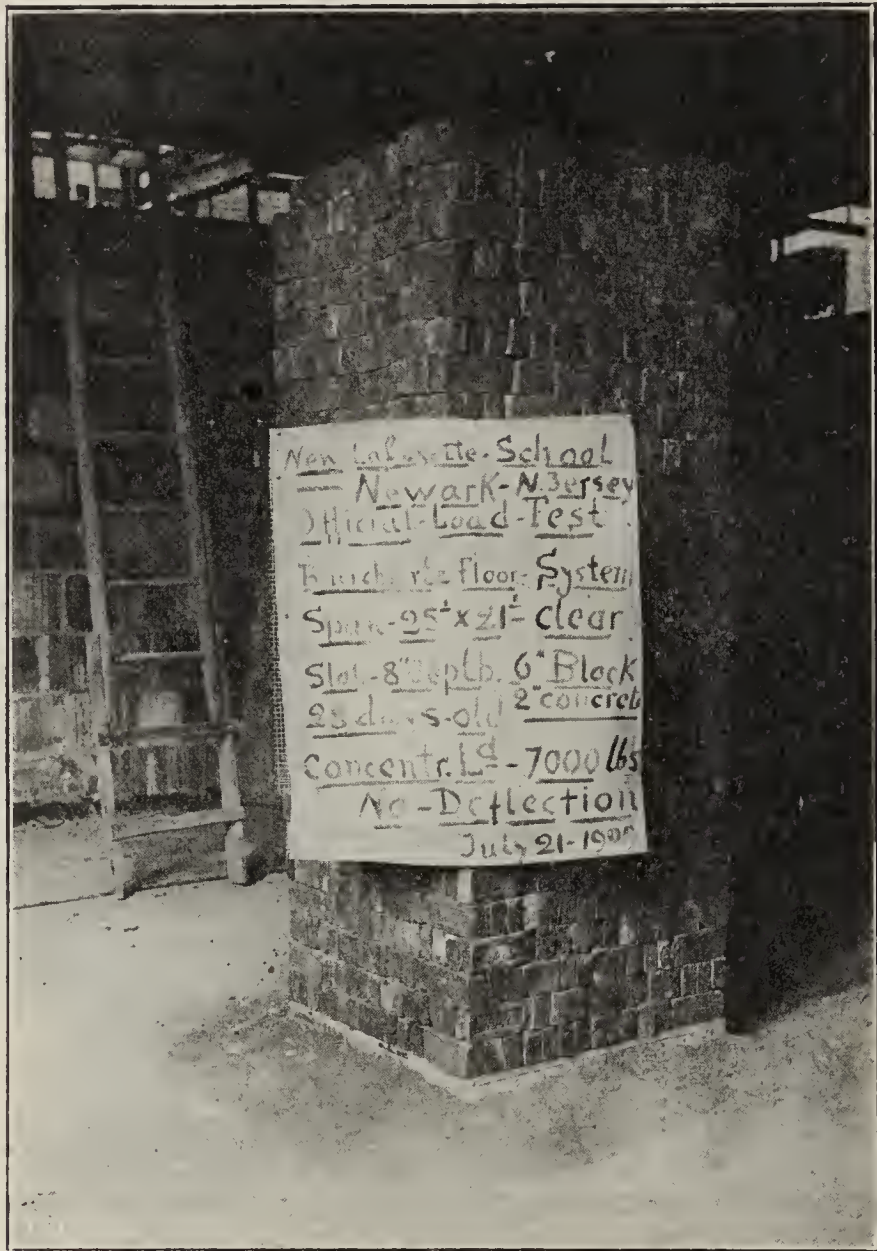


Figure 6.

have to get down on our knees to get men to work this year," said the manager of one of Toledo's important brick manufacturing institutions. There is no great quantity of brick being used in Toledo this year, as building operations here have been slow, especially in industrial and investment lines. Not only is this sluggish condition true in the city itself, but throughout the State there seems to be no great brick activity.

Local manufacturers have not been lacking for orders, however, and have all they can do to keep up with the demand, which is coming in strong from outside quarters, especially from Detroit, where many large automobile factories are being constructed. Prices are holding up well, and there is everything to make the brick man feel good except the difficulty to secure enough men to keep operations up enough to fill the orders.

Paving brick is in strong demand all over the country, and

Written for THE CLAY-WORKER.

THE COMBUSTION OF FUEL AND THE APPLICATION OF HEAT IN KILNS.*

BY A. V. BLEININGER, PITTSBURG, PA.†

(Continued from June CLAY-WORKER.)

DISTRIBUTION OF HEAT LOSSES.

ON STOPPING TO CONSIDER where the heat generated by the coal charged into our kilns goes, it is evident that it must be distributed about as follows:

- Heat used in burning the ware.
- Heat carried out by the waste gases through the stack or leaving through the top of the up-draft kiln.
- Heat lost by unburnt fuel in the ashes.
- Heat taken up by the kiln and lost by conduction and radiation.

The heat required theoretically to heat up a pound of dry clay, containing 2 per cent. of hygroscopic moisture, may be approximately calculated to be 500 B. t. u. If thus a dry brick should weigh six pounds, the heat required (theoretically) to burn 1,000 bricks to an average temperature of say 2010° F. would correspond to 3,000,000 B. t. u. Expressing this in terms of coal of fairly good quality, possessing a heating

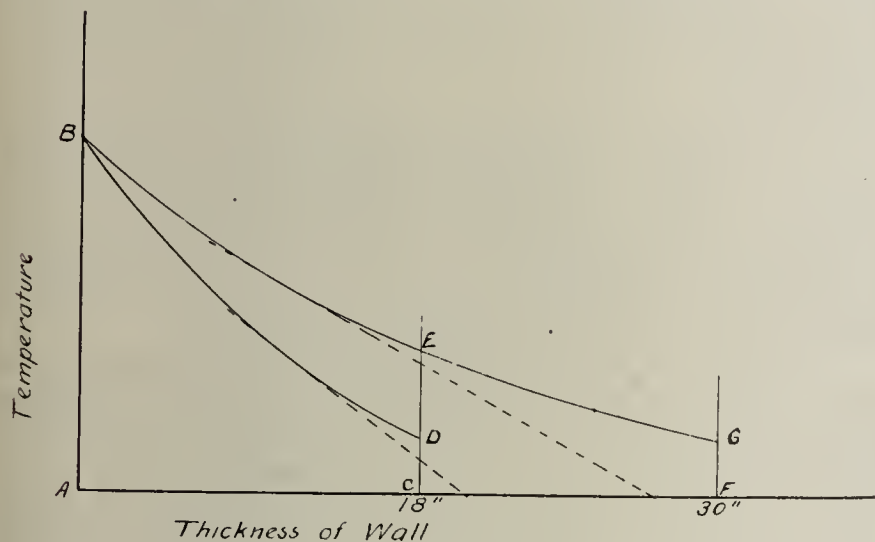


Figure 2.

power of 12,600 B. t. u. per pound, we would have 3,000,000 divided by 12,600, or 238 pounds of this coal. In other words, 238 pounds of coal should burn 1,000 bricks weighing 6,000 pounds in the dry state. This would be equivalent to practically 4 per cent. of fuel in terms of the dry weight of the clay, or 4 pounds of the above coal to 100 pounds of clay. It is evident that while this heat consumption is not a figment of imagination, but is based upon facts, it is far less than the total amount of heat charged into our furnaces, although in some European continuous kilns the difference between the ideal and the total expenditure of fuel is surprisingly small.

That much heat is being carried out by the waste gases is obvious to the most casual observer, and it is equally evident that all of this heat is lost beyond recovery under the ordinary conditions obtaining with the down-draft and up-draft kiln. In order to estimate the amount of this heat which is thus lost, the writer made some accurate measurements on a number of kilns some years ago, and while it was found that this heat is not as great as is sometimes supposed, it is still considerable. Thus, out of 100 pounds of coal charged into a down-draft building brick kiln, 27.3 pounds were used up to heat the stack gases; in a paving brick kiln 29.9 pounds out of 100 were used for the same purpose; and in a sewer pipe

kiln 18.6 pounds. The more air is allowed to enter the kiln the greater will be the amount of heat carried out by the waste gases. For this reason, under ordinary conditions, during high fire, not more than 20 to 30 per cent. excess air should be permitted on the average. The question of utilizing this heat with periodic kilns is not an easy one, and it is quite clear that it can be done only by some adaptation of the continuous principle, viz., by carrying the hot gases through another kiln which is beyond the water-smoking stage. With the ordinary arrangement of kilns this is usually difficult to carry out, and it cannot be denied that the problem is only solved properly by the continuous kiln. It has been suggested that this heat be used to generate steam by boilers set into the flues, but this scheme is also quite combersome, and often not practical.

The ashes which fall through the grates always contain more or less unburnt coal. This loss may seem insignificant, but this is not the case. Frequently it amounts to as high as 5 per cent. of the total heating value of the coal, i. e., 5 pounds out of every 100 fired into the kiln may be lost in this way. Poor management in raking the fires and the poor condition of grates is responsible for a large part of this loss.

In burning a kiln of bricks we not only are compelled to heat the product, but we must heat up the kiln walls, the kiln bottom and flues as well. In addition, where the kiln bottom

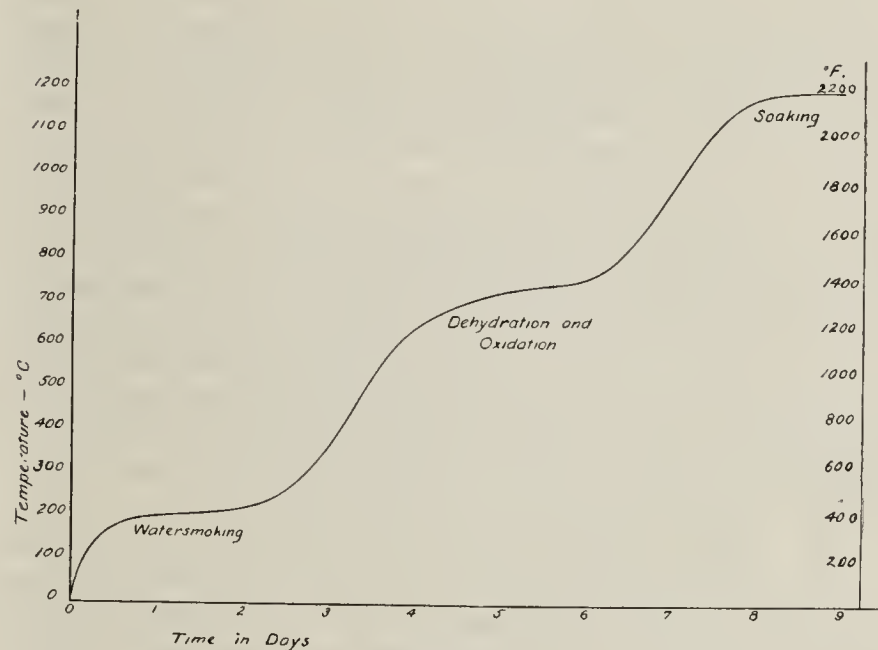


Figure 3.

is wet, we may be compelled to expend a good deal of the heat for which we pay our good money in evaporating tons of water to no good purpose whatever. Furthermore, a great deal of heat is continually lost by being radiated from the kiln walls and transferred to the outside air by convection. The latter losses of heat are so important that it will pay us to consider briefly the nature of this passage of heat from the interior of the kiln to the outside.

Assuming, for the sake of illustration, a kiln wall 18 inches thick, with a temperature on the inside of, say, 2000° F., and on the outside of 300° F., we might represent this condition by means of a diagram, Fig. 2, in which we plot the temperatures along the vertical lines AB, CD and FG. By connecting the 2000° point with the 300° point through a curve, we represent the drop in temperature. From well-known laws we know that the amount of heat passing through the kiln wall is proportional to this temperature drop, since the heat is transferred to the outside entirely by conduction. It is evident from this that a thicker wall would lose less heat to the outside air, since the grade or slope of the curve is decreased. If the wall, for instance, be made 30 inches thick, and assuming that the inside and the outside temperature are the same, we would find that the heat lost to the outside would be about 57/94 of the heat lost through the 18-inch wall. This is shown by the curve BEG, whose slope is decidedly less than that of

*Read before the Wisconsin Clay Manufacturers' Association, February 25, 1910.

†By permission of the Director of the U. S. Geological Survey.

the curve BD. In other words, the thicker the kiln wall the less heat we lose to the outside air, and vice versa.

Another factor enters into this matter, namely, the heat conductivity of the bricks in the wall. The harder and denser the bricks the more heat will they conduct and lose to the outside, while, on the other hand, porous bricks, though they be soft burned, carry away far less heat. If we want to reduce this never-ceasing loss of heat, we should make our kiln walls as thick as possible, and in addition use three kinds of materials, namely, fire brick on the inside, porous soft burned bricks in the middle, and well-burned bricks on the outside. The more porous the bricks in the middle part are the better they would be suited for this purpose. Recollecting the fact that air is an excellent non-conductor of heat, it might be suggested that the middle of the wall be built of hollow tiles or similar material. This would be an error, since, while air is a good non-conductor, it would not stop the radiation of heat through the free space. Of course, this could be gotten around by filling up the tiles with a porous material like sand mixed with a little wet clay to keep it from running. Therefore, while at the ordinary atmospheric temperatures air is a fine non-conductor and hollow tiles are excellent for the construction of buildings, this does not apply to the more elevated temperatures, for the simple reason that radiation becomes more and more prominent the higher the temperature differences are.

Now, as to this loss of heat, is it really important enough to look after this question? A simple approximate calculation will throw light upon this topic. If the temperature difference between the outside and the inside of the kiln is, say, 1850° F., we would find that for a 24-inch wall, assuming an average heat conductivity, the heat lost per hour would be equal to about $\frac{3}{4}$ pound of average coal per square yard of surface, or, roughly, to 3,500 pounds of coal in 24 hours for a 30-foot down-draft kiln during high fire. This calculation is a very rough approximation, but it indicates the magnitude of the heat losses involved. The colder the weather the greater is this loss bound to be, as we all know from experience. In clamp kilns the thin walls so often employed are a source of enormous heat loss, and the above explains why we cannot burn our bricks hard enough close to the scoving.

After a kiln is burnt off there is a great deal of residual heat in the ware and the walls which is lost unless measures are taken to draw off this heat for drying purposes. In one case examined by the writer the heat recovered from a building brick kiln by the waste heat system was equivalent to 28 per cent. of the coal fired in the burning, a gain certainly worth while. In fact, this amount of heat is greater than the theoretical amount required to burn the product.

To show the heat distribution for several kilns the following figures are cited:

	Building Brick Kiln.	Paving Brick Kiln.	Sewer Pipe Kiln.
Heat lost by waste gases	27.33%	29.9%	18.6%
Theoretical heat required	19.55%	11.3%	5.7%
Lost by unburnt coal in ashes	3.51%	3.9%	4.58%
Heat taken up by kiln and lost by radiation..	49.61%	54.9%	71.1%

These kilns were all down-draft, and represent actual measurements of temperatures, gases and weighings of coal and product.

It is evident to any one familiar with practice that the actual amount of coal used in burning clay products varies enormously for different clays and plants. Thus, by actual determination the writer found that one ton of sewer pipe required 1,457 pounds of coal, one ton of building brick 468 pounds, and one ton of paving brick 660 pounds of coal. That our coal consumption for burning clay products is excessive cannot be denied. Kiln economy must be given more and more attention, and gradually this will lead to the use of im-

proved kiln construction and to the application of the continuous principle.

THE BURNING.

A brief summary of the burning process may not be out of place. The various stages are evidently:

1. Watersmoking.
2. Dehydration.
3. Oxidation.
4. High fire.
5. Soaking.
6. Cooling.

It is a fact familiar to every clayworker that we cannot raise the heat steadily in firing a kiln, but that some definite halts or stations must be observed. The first of these is evidently watersmoking, which in the case of well-dried bricks ranges from 200 to 400 degrees Fahrenheit. In this stage the hygroscopic water which clings to the clay so tenaciously must be removed, and slowly enough so that the escaping steam will do no harm to the structure of the ware. Also, it is important, especially in down-draft kilns, to remove the steam as promptly as possible, so that it may not collect near the bottom of the kiln, condense and soften the ware. Since, however, at this stage the kiln has least draft, owing to the cold stack, the circulation should be improved by either using a double chimney kept heated from one or more kilns further advanced or by improvising a furnace at the bottom of the stack, i. e., firing coal to heat up the air and to improve the draft. In this manner the injurious collection of steam may be avoided, and with it the difficulties caused by the softening of the clay.

After the kiln has finished watersmoking, which may be noted by the absence of steam, the heat may be raised to the dehydration stage, at which the chemical water of the clay is expelled. A short halt should be made at this point, which corresponds to about 1200° to 1250° F. This is especially important with very plastic clays, as they may be injured in structure by the too rapid expulsion of this water.

At about the same temperature the carbon contained in the clay begins to burn out, and hence it is important to admit plenty of air into the kiln to aid in this process, and to raise the heat but very slowly until the combustible matter is removed. This may be easily determined by drawing a brick or other trial and breaking it open. The absence of a dark or gray spot in the center indicates completed oxidation. After this has been accomplished the heat may be raised and the high fire stage begins. This may be pushed fairly rapidly, or just as fast as the coal can be burnt nicely without the formation of dense smoke. The fire should be kept as thin as possible. If a bright red color is desired, all smoke should be avoided as much as possible by the use of a coking plate throughout the balance of the burn. For dark shades oxidizing conditions should prevail up to the last 12 hours of burning, after which a smoky fire may be maintained. The latter condition, commonly called reducing, if very intense, will result in black flashed ware.

The temperature of the finish depends upon the clay. While with some materials there is considerable leeway as to the finishing temperature, in others the range is very narrow, and with such the burning must be watched closely. When the finishing temperature is almost reached, the temperature is raised very slowly or kept constant, so that the heat may be equalized throughout the kiln. This we call soaking. When the burning is finished the damper is dropped or the platting closed, so that the cooling may take place as slowly as possible at first. In burning clean-colored products it is important to let the fires burn down completely, so that on closing the kiln no reducing gases can collect in the kiln and spoil the color. This is often neglected, and is responsible for many a kiln of discolored ware.

In Fig. 3 a diagram is presented which shows the temperature curve for a nine-day burn and the several halts at the proper temperatures. Such a systematic firing system should be impressed upon the burner's mind if he is to be sure of what he is doing.

Written for THE CLAY-WORKER.

BRICK NEWS OF MILWAUKEE AND WISCONSIN.



TRADE CONDITIONS throughout Wisconsin have remained practically unchanged during the past two months, but Milwaukee brick men expect that business will take a new lease of life before autumn, and that the season will equal that of 1909. Many of the smaller cities of the State are planning a great deal of pavement work, and an active season is looked forward to

by the paving material men. The local conditions in Milwaukee are bad. A slight advance in building was noted during June, but expectations are not being fulfilled.

A large percentage of building which is being done in Milwaukee is for small frame flat buildings; generally brick is used in the foundations, and occasionally some of them are veneered, but not as a usual thing.

As a result of the custom of allowing the residents on a street to choose the kind of a pavement that they desire, which has prevailed in Milwaukee for the past several years, the streets are nothing more than a patchwork of different kinds of pavements. For instance, Wells street is paved between the river and Eighth street with asphalt; from Eighth to Eleventh with macadam; from Eleventh to Twenty-fourth with asphalt; from Twenty-fourth to Twenty-sixth with brick; from Twenty-sixth to Twenty-eighth with bitulithic; from Twenty-eighth to Thirty-third with creosoted blocks, and from Thirty-third to Thirty-fifth with tar macadam. And contracts have been awarded to replace the macadam between Eighth and Ninth streets with sandstone, and the macadam block between Ninth and Eleventh with asphalt.

The need of uniformity in street paving has become evident as a result of this condition of affairs, and a movement is now on foot in the city to do away with the old custom and have the Board of Public Works select the material with which the streets shall be paved.

Will P. Blair, of Indianapolis, traveling under the auspices of the National Educational Bureau of the National Association of Paving Material Manufacturers, visited in Milwaukee recently. After a tour of a portion of the city, during which he inspected the various pavements under course of construction, he gave an address before a large audience in one of the armories. He declared that of the twelve or fifteen miles of pavement he had inspected he had not found one square yard of properly laid brick pavement, and then proceeded to call attention to many mistakes that had been made in the work in this city, as well as in many other American cities. Among these faults are the unrolled sub-grade, which results in hollow places forming under the foundation. He called attention to the expansion cushion, which he declared should always be put in after the entire surface was complete and one solid mass, and not put in before the bricks were laid, as he had seen done in some cases. The street car company was taken to task for the way in which the spaces between the bricks in the pavement between the car tracks were filled. Mr. Blair said that he had seen laborers mixing the cement and sand on a flat platform, after which it was scooped into pails and poured into the cracks between the bricks. In this way, he declared, the sand was separated from the cement, settling by gravity, and weakening the mixture.

Following his talk on the city streets, Mr. Blair gave a stereopticon lecture on "Road Building in a Scientific Manner." He criticised the use of a roller weighing more than five tons for smoothing the brick after they had been laid, and stated that it was a most important point to roll the sand with a 1½ ton roller prior to laying the brick.

Many of the city officials were among the listeners, and it is understood that hereafter Milwaukee's pavements will be laid under close inspection by capable parties.

The Board of Public Works of the city of Beloit, Wis., has

awarded the contract for the brick pavement to be laid in that city to the Western Improvement Company of Racine, Wis. Bids were received from four contractors, as follows: Western Improvement Company, Racine, Wis., Purington blocks, \$66,767.48, Marion blocks, \$64,811.68; O'Farrell Contracting Company, Dubuque, Ia., \$78,051.03; A. E. Rutledge, Rockford, Ill., Purington blocks, \$67,908.72; Federal Improvement Company, Chicago, Paston brick, \$68,565.66.

The Athens (Wis.) Brick and Tile Company has closed a contract with the Catholic congregation of Cassel, Wis., for 100,000 brick to be used in the construction of a new school building.

James Cape & Sons, of Racine, Wis., have been awarded a contract for a brick pavement at Waukegan, Ill. The work will be done at an expenditure of nearly \$60,000.

As a result of a settlement being reached between the masons and the contractors at Janesville, Wis., the Janesville Machine Company will use brick in the construction of its new \$45,000 warehouse. For a time it was feared that the original specifications would have to be changed, owing to the labor difficulties, and that concrete would have to be used in place of brick.

T. J. Skjelbred, of Rice Lake, Wis., has leased the plant of the Washburn Brick Company at Washburn, Wis., and will put the plant in operation at once. Several improvements are being planned and new machinery will be installed in some parts.

The Wisconsin Red Pressed Brick Company is enlarging its plant at Menominee, Wis. A carload of new equipment was recently received and is being installed as rapidly as possible, so that operations will not be delayed any longer than absolutely necessary.

Efforts are being made by the business men of Nekoosa, Wis., to obtain a large clayworking plant for their city. Clay deposits, which are said to be of good quality, have been discovered near the city, and samples have been shipped to concerns in Illinois for tests.

Plans are being made by the management of the Monroe Steam Brick Works of Monroe, Wis., to double the capacity of their plant during the present season. During 1909 over 600,000 bricks were manufactured, while this year, with the new equipment which has been recently installed, it is expected that the figure will pass the million mark.

The Pennsylvania Coal and Supply Company, with offices in Milwaukee, has closed a contract for 1,600,000 Marion paving brick for the city of Beloit. John O. Jones & Son, of Racine, Wis., have been awarded the paving contract.

A. BADGER.

WILL TERRA COTTA REPLACE WOOD?

The approaching world's timber famine is beginning to worry constructors, and will mean that if afforestation is not taken in hand immediately other materials must be found to take the place of wood. The United States Government has established laboratories at various centers for the purpose of testing all sorts of structural materials. The results of these tests are published from time to time, and in this way architects, engineers and contractors are informed as to the capabilities of the materials.

Only within the last year or two has general interest in the diminishing timber supply been aroused, and to that condition may be traced also the invention of novel building materials.

Thus there is a constant attempt to employ for building the only substance of which the supply is unlimited, the soil of the earth itself. Especially is this so in and near the big cities, where the scarcity of timber and the consequent high prices are felt most seriously. For here the difference in price between a frame house and a house of more solid material is so small as to be unimportant.

Illustrative of the general tendency to find substitutes for

wood is the suggestion of Herbert M. Wilson, of the United States Geological Survey, that scientific investigations into the properties of clay be undertaken. The American Ceramic Society made a start in this direction by appointing a special committee to report upon a plan for "systematizing the study of clay products."

Individual builders meanwhile have gone ahead and demonstrated the practicability of their ideas. Last year the building department of New York City, for the first time in its history, received plans for a terra cotta house. The plans were passed upon favorably, and the house, which belongs to a professor in New York University, has just been completed.

In the suburbs around New York, there have been put up recently several terra cotta dwellings. The principal element in them is the hollow tile block.

In the walls and partitions the blocks are set on side, so that the hollow spaces form continuous horizontal pipes. These hollow spaces make the walls non-conductors of heat,

the high price of timber has made the cost of a fireproof house relatively small, and has, therefore, removed or weakened the desire of builders to use wood.

In Australia, says Building, the use of terra cotta is manifested by the government and a number of leading architects specifying the material for floors and such buildings as in the New Central Railway station, the Fisher Library, the National Library, etc., as well as the internal walls of such skyscrapers as the Commercial Travelers' Club building, the Blashki building, Beulah Residential Flats, the Union Bank and other important structures.

After more than thirty years' continual use, terra cotta is still one of the standards by which fireproof excellence in construction is reckoned; in fact, being composed of clay which has been burnt in a kiln at a temperature of from 2,000 to 2,500 degrees Fahrenheit, it is actually a fire product, hence can not be destroyed by the element that created it.

The world's timber devastation is making our constructors



One of the Harlem Brick Docks Where the Building Brick Are Taken From the Barges.

and thus tend to keep the house warm in winter and cool in summer. In the floors the blocks are laid between beams of steel or reinforced concrete. With both walls and floors made of terra cotta each room is enclosed with fireproof material, and fire could not easily spread from one room to another.

The exterior surface of a house of this type is covered with a stucco of whatever color the owner chooses. The original cost of a terra cotta house is perhaps 10 per cent greater than that of a timber building of similar size. The ultimate saving is effected through smaller maintenance charges and insurance premiums.

Perhaps the most significant single effort toward the substitution of other materials for wood is the proposal to extend the fire limits of New York to include the whole greater city. If the aldermen pass such an ordinance it will mean that no more timber houses of any kind may be built in the metropolis. Ten years ago this plan would have had no chance of success; now it has a good chance, simply because

seek a substitute, and the question now engaging the general attention is: Will it be replaced by terra cotta?—Exchange.

ENGLISH CONTRACTOR HELD LIABLE FOR FAILURE TO REPAIR ROADWAY.

In England they have a law that when a contractor digs up a roadway that he has to replace it in the same condition in which he found it. Over here we have similar laws, only our laws are not enforced, while in England they are or some one suffers.

In England a contractor laying gas mains failed to properly refill a breach, and as a result a motor truck was damaged. The judge contended that it was the duty of any one who disturbed the high road afterwards to leave the whole of it in safe condition for all ordinary traffic; or if, as the defendants contended, wet weather prevented the newly laid portion from hardening, it ought to be kept safe; or steps should be taken to warn traffic of its unsafe condition.

Written for THE CLAY-WORKER.

THE BRICK DOCKS OF HARLEM.

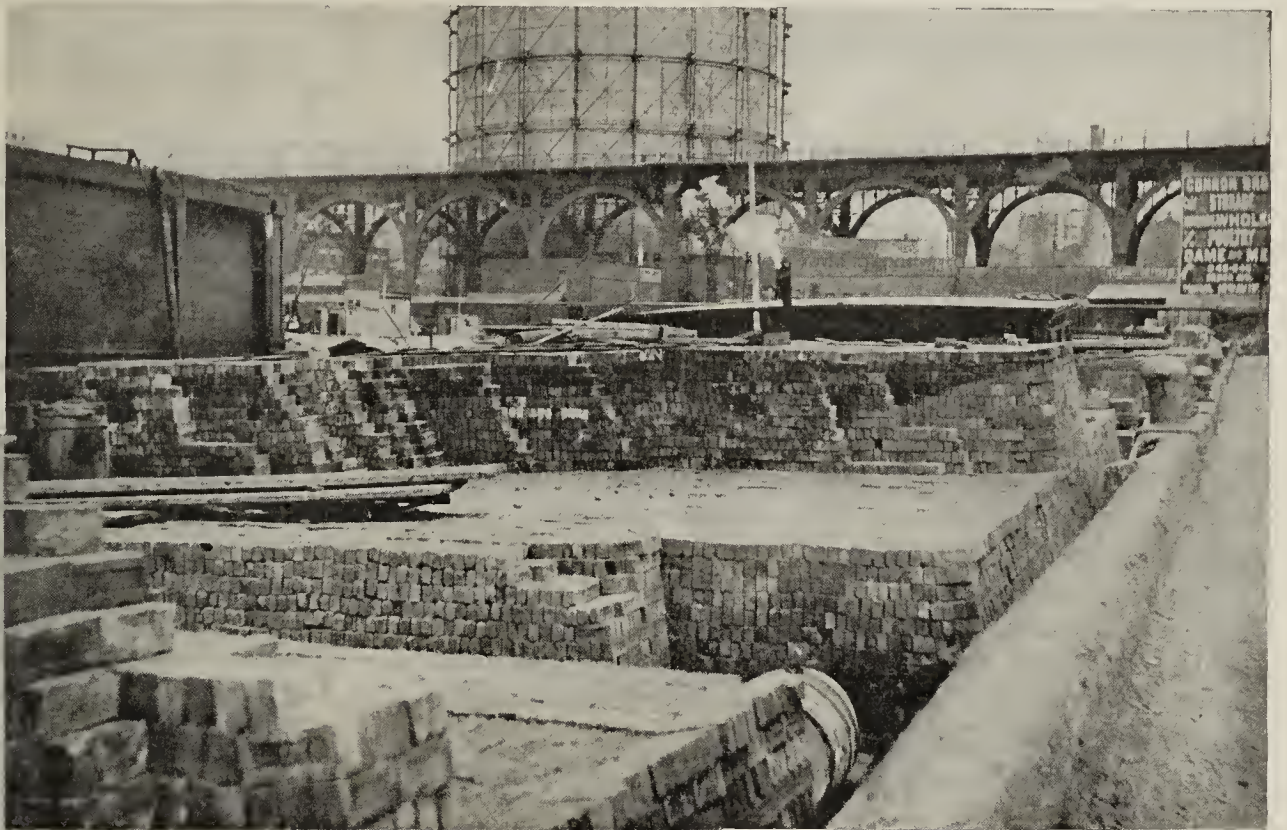
A FEW YEARS AGO Harlem was a name for a sparsely settled community situated north of New York. It was a joke for the funny men—a region of ledges and goats, with squatters' shanties springing up on the vacant lots. Now it is a solidly built up section of New York, with several streets, like One-hundred-and-twenty-fifth, for example, rivaling other important business streets in the city. Great business houses, huge manufacturing plants and innumerable flats, and more going up, for those who want homes outside the bustle of the city.

A considerable proportion of the structural work of New York is brick of one sort or another. Many buildings are constructed almost wholly of brick, while others divide the brick

like all other docks, provided with apparatus for handling the goods brought there on barges or lighters, and in close proximity to the busiest portion of Harlem. The New York Central railroad runs its freight trains past this point, and sometimes during the winter brick are brought from the Hudson river yards by train. But in the summer, of course, the water transportation is the easiest and cheapest, with huge quantities coming all the time.

Twelve or more barges, each carrying 500,000 brick, can unload at these docks at the same time. The accompanying illustrations will afford a reasonably accurate impression of the appearance of these docks all the time during the shipping season. They were not especially crowded the day these photographs were made, but they were amply filled. Just at that moment no one was loading drays at the barges, but before the writer left the docks a number of teams were stand-

A Glimpse Of One of the Harlem Brick Docks



Barges Loaded With Building Brick Held Up at The Dock

with steel or some other material. And even though all sorts of subterfuges are resorted to to induce those proposing to build to use some other material, it must be confessed that, so far, at least, as New York is concerned, brick is the most popular material, and brick is still utilized in a considerable proportion of the structural work, regardless of the fact that other varieties of building material are more extensively advertised and are unscrupulously pushed in numerous instances.

Naturally, with such a rapid growth in Harlem, it became necessary to provide a landing place for the brick which comes down the Hudson river in barges, or comes up the North river in the same way from other manufacturing centers. The docks at the foot of One-hundred-and-thirty-first to One-hundred-and-thirty-fifth streets have been selected as the landing place. It is impossible to describe them. They are

ing there, ready to receive loads to be carried to building projects in different localities in that section of the city.

When asked how many brick were unloaded at these docks during the season, a gentleman there said he could form no adequate idea. The quantity varies with the activity of the building season. Sometimes there will be more, sometimes less, but in all instances there are sufficient to satisfy the bulk of the demand in that portion of New York.

It would be impossible to even hint at the important structural operations which are going on in that portion of New York this season. It is such a long string that a mere catalogue would fill a considerable volume, while to go over them all carefully would make a series which would scarcely be believed, and practically all the brick used will be unloaded at these docks.

Another interesting feature is that the brick here unloaded

forms only an inconsiderable proportion of the immense quantities which are annually unloaded in New York. The conditions which obtain here and in reality govern the demand for brick are repeated in some degree throughout the greater city, always with profit to the brickmaker. Frequently these docks are so crowded with brick barges that it is impossible to find space for any more. But the demands of the business in that vicinity are so insistent and the requirements are so constantly unsatisfied that the movement into consumption is quite as rapid as the movement from the yards. There are seldom loaded barges or schooners standing here for long.

When asked if any particular firm occupied these docks more than others, it was replied that such firms as sell brick to builders in that portion of the city occupy the docks. There is always something going on that requires brick, frequently by the hundreds of thousands. The result is that the brick docks are steadily scenes of activity, never showing dullness except in mid-winter, when building operations are at a low ebb.

These docks project into the river about 500 feet, and there

are three of them, as shown in the illustrations, though two are on different sides of the same pier. The activity is naturally confined to the unloading of barges and getting them started back up the river.

Here begins that last of the journeyings of a piece of clay in its movement from the pit to the finished building—a story as fascinating as any novel. It is one trip more from here, and then forever performing its part in holding up the wall of a more or less important structure.

These barges come down the river in huge tows, sometimes a dozen or more in one string, each one carrying 500,000 brick. The number consigned to Harlem are taken off here, while the rest continue down the river to the New York docks, which are on the East river further down. There can always be found more or less barges and canal boats, either unloading or just finished and ready to be sent back. It is all interesting, and all is indicative of the marvelous growth of New York, and particularly of the newer portions of it, like Harlem.

BURTON.

NECESSITY OF A UNIFORM SIZED BRICK.*

By T. G. Dennis, Pontiac Brick Co., Seattle, Wash.

SOME OF THE CLEANEST, easiest profits yielded in our industrial system during this generation will be profits saved by cutting off waste, working up by-products, linking processes together more closely, and so forth. These profits are easy because they are skillfully extracted from the present volume of business, so that no more capital or equipment is needed. Such profits are clean because they come through ingenious development of processes rather than through business taken from competitors."

This is a paragraph from a Saturday Evening Post article, "The Easiest Profits," by James H. Collins. It is a splendid statement of what I believe to be a fact.

With this as an introduction, I will discuss three distinct phases of brickmaking, in which there is opportunity for the utilization of dormant energy.

First, let us consider how to use nature's means to assist us in working the clay banks, as we find them, to the best of our advantage.

The second consideration will be the utilization of heat as generated in our furnaces.

Thirdly, I wish to discuss the vital importance of establishing a uniform size of brick.

I believe that there is no district of its size in the world where the clay banks demand and receive such a sacrifice of money and time as these of the Pacific Coast.

The clay banks of the Puget Sound country, and, in fact, the whole Pacific Coast, are in a jumble—a mixture of almost pure clay, or kaolin and sand in varying proportions, sometimes found in spots, sometimes in layers.

Pure, dense clay is not reduced in the processes used to reduce the mixed clay and sand, but it appears in segregated lumps in the finished brick. Sand and a poor clay which is more easily reduced to the proper constituency for working is found mixed with this pure, dense clay. These clays and sand are found imbedded so closely to each other, that to segregate them would be an impossibility from a financial standpoint. So it follows that we can not avoid using them all as they come.

Dame Nature, in her wonderful economy, has provided us with all the ingredients necessary for the production of a first-class brick. The pure clays found in our clay banks are too dense to make good bricks of themselves, but there are poorer clays and sand also in the banks and they are essen-

tial elements. When all these ingredients are properly mixed, they give the brick the proper porousness and consistency.

Bricks made of this mixture are slow to give up moisture. Therefore they are difficult to dry and to burn successfully. As a result of these natural conditions, we often see in the same kiln two bricks side by side, one burned to a clinker, the other almost a salmon brick. Now, the question is, how can we so get them mixed as to secure these necessary attributes? There are four methods: First, we can grind, mix and pulverize with machinery the clay and sand as it comes from the bank. This is a very expensive method, for, imbedded in, and coexisting with the clay are innumerable little pebbles, varying from the size of a pea to six inches in diameter. These are invariably round and very hard. The clay banks being at all times saturated with moisture, prohibits the use of a screen to separate the rocks from the clay before going to the machinery. Hence, these rocks must be separated from the clay by very expensive machinery before we grind the clay and mix it to its proper constituency.

Second, we can dig the clay in advance and store it in sheds, allowing it to disintegrate of itself as it goes through the sweat. Imagine a clay shed sufficient to hold enough clay for 6,000,000 brick. It would have to be 100x400 feet and 30 feet high.

Third, we can grind it under pressure.

Fourth, we can shoot our clay banks in the autumn and allow nature to do this work for us during the winter months. I have found these last two methods very successful and economical, both in reducing the pure clays to fine granules and also in mixing the pure clay, sand and the poorer clays equally, so as to get a fairly uniform mixture.

There are three successful methods of drying brick. One by leaving the green brick in the open air; another by applying direct heat, the other by using waste heat. Drying in the open air requires an extensive drying ground, probably four acres or more (which would require a considerable outlay of money for clearing). Even though this method produces the best results, it is such a tedious time-requiring process that it has been practically eliminated, owing to the slow evaporation effected by the light, moisture-bearing Puget Sound winds. Speaking of the second method in the drying process, let us discuss a few phases in artificial drying. It would simplify matters could we so hack our bricks that each unit of heat generated could be forced through the thinnest way of the

*Read at the annual convention of the Clayworkers' Association of the State of Washington.

brick and made to escape on the opposite side with its load of moisture. But, with our present knowledge, this is impossible. Therefore we adopt the next best means according to our knowledge, which consists in passing, forcing or drawing the heat along side of the brick; between and over and under them. In this way, sufficient heat penetrates the brick to evaporate the moisture from the green brick. In this process the brick becomes softer on the outside. This is a very serious difficulty in artificial drying, because, if, when they are in this soft condition, too much heat is introduced, the result, which we call the drying check, is that the brick are cracked sometimes as much as one inch in depth. Of course, the texture of the brick and its appearance are ruined. It is easily fractured in handling and slivers and chunks fall off during the loading.

This drying process requires an immense amount of fuel. That means money. If we can devise a way to utilize the heat generated in our kilns and under our boilers for this purpose, we are derelict if we do not so use it.

In the burning of brick, it is essential under any system

wet brick and they will do the work without any additional expense to us. This is a momentous item in economy. It is one great reform that we can accomplish. And, now while on the subject, I am going to claim a little distinction for myself. I claim to be the first man in the Puget Sound country or on the Pacific Coast, to put into successful operation a fan for the purpose of furnishing draft in a continuous kiln, and I also claim to be the first in this country to use the waste heat from the smoke stack of a boiler successfully to dry brick without cracking. I do this without increasing, but, in fact, reducing the amount of fuel and at the same time increasing the output of brick. I can and do dry 40 per cent of our output with this waste heat.

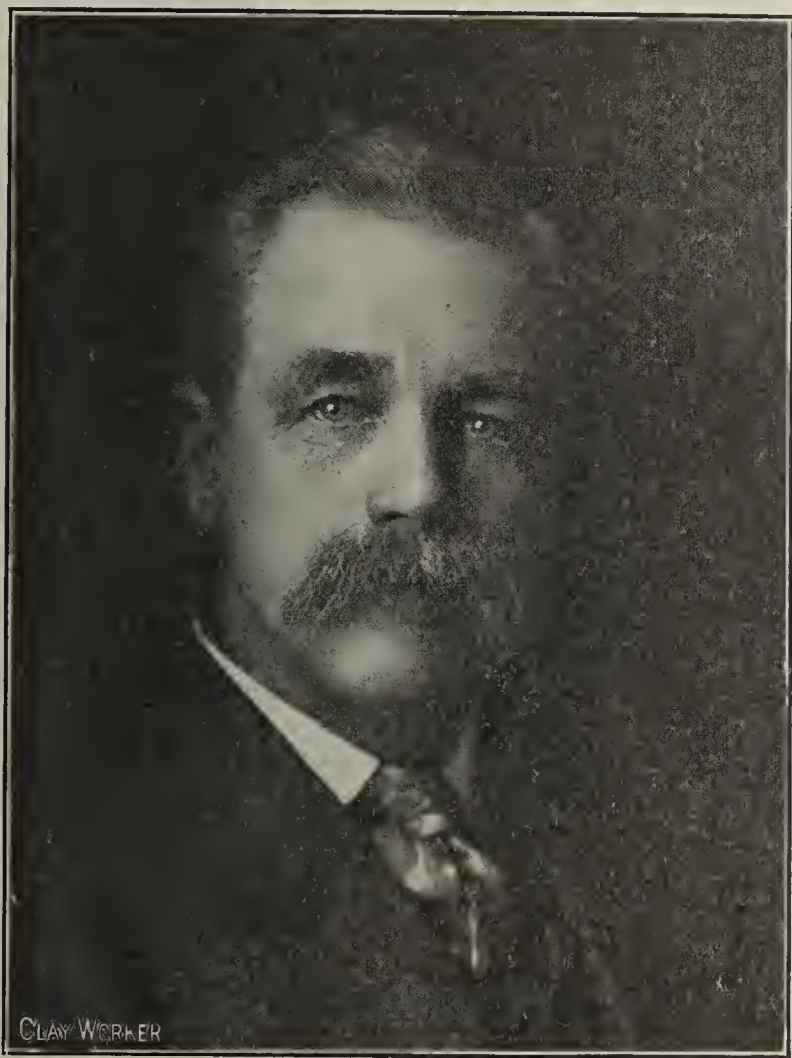
Now, in regard to a uniform size for brick. I have here one of the average size, made by the brickmakers in and around Seattle.

This variation in the size of brick is the source of constant annoyance to architects, contractors and owners; it is a subject of dispute among brickmakers, and it is often used by contractors as an excuse for forcing down the price of brick below a fair margin of profit. To illustrate, let us suppose a contractor has had his bid accepted and is ready to purchase his material. He asks for bids from the various brick yards. Suppose Yard No. 1 makes a large brick, No. 2 a smaller one. No. 1 makes a bid of \$7 per thousand; No. 2, \$6.75 per thousand. Mr. Contractor informs Yard No. 1 that he can get a better price at Yard No. 2, and likewise informs Yard No. 2 that his brick are inferior in size to those made at Yard No. 1. The result is that these two yards are made to fight each other for the contractor's benefit, while the contractor smiles to himself, is well pleased with the little scrap he has stirred up and hopes they will keep it up. We brickmakers are making laughing stocks of ourselves, as well as losing a considerable amount of profit. What are we waiting for? Why don't we get together and establish a uniform size of brick? (I heard a remark to the effect that brickmakers didn't know enough to even make their own size material). No one ever heard of a cubic yard of sand being more or less than twenty-seven cubic feet; a yard of cloth more or less than three feet; a dozen eggs anything but twelve eggs. How ridiculous it would be if those things varied in amount in accordance with the ideas of the dealers. When a man buys a bunch of shingles he knows he will get two hundred and fifty shingles, each exactly four inches wide and sixteen inches long. He can depend on it. He can make his figures accordingly. There is no reason why the same should not be the case with the brick. The owner, the contractor and the architect are entitled to know just what size they are to depend on.

Now, it is necessary to consider what is the most practical size for a common brick, what size will answer all purposes best from the view points of both the contractor and manufacturer.

The most important qualification of a brick is its symmetry; the next its construction, and the qualification third in importance is its incapacity to absorb water. The builder requires a brick that will enclose a certain space, make a good appearance, sustain the building and occupy at the same time as little space as possible, laterally. He is interested, therefore, not so much in the thickness of the brick as in the other qualities pertaining to the above requirements.

The contractor is interested in the size of brick, only as one brick relates to another in the same market. Make all the brick the same size and he will be satisfied. Therefore, it resolves itself down to the single proposition as to what is the most economical size for the brickmaker to manufacture. Right here, let us consider the changes that have taken place in the past twenty-five years in the construction of fireproof buildings. Twenty-five years ago, a twenty-story building was scarcely dreamed of; a six-story building was considered a very high building and was thought to require



T. G. Dennis, Seattle, Wash.

now used, that all the brick in a bench nearest the fire should receive an equal amount of heat at the same time; or, in other words, the heat units generated must be equally distributed throughout the kiln as they pass along to do their work. The fact is, that brick must be very equally set, continuously and at all times to get the best results.

The successful brick burner has acquired his knowledge by actual experience and he can not be replaced by machinery, pyrometer, electric gauges, or by anything but another experienced man. He knows how to generate units of heat with the molecules of air, entering our furnaces full of energy to do their work; he knows how to get rid of them when they have burned the brick.

We see, pouring from the smoke stacks of the boilers and kilns all over the United States, millions and millions of heat units, for which the brick burner has no more use. These heat units which he casts off are still capable of doing a wonderful amount of work. They have sufficient energy to dry our green brick. It remains for us but to conduct them to the

a thirty-three-inch wall to carry it. Then a long, wide brick was very practical. We have two examples in Seattle of buildings built according to this old idea. The New York block, which is seven stories high, has a thirty-three-inch base and the Bailey Building, with six stories, has a twenty-nine-inch wall. Contrasted with these is the Alaska Building, which, with its fourteen stories, has a thirteen-inch wall at the base. Furthermore, I have been informed by good authority that a twelve-inch wall is sufficient for such a building.

Having dispensed with the idea that thickness needs to be an important consideration in the making of brick, let us take up some of the other phases.

We have already considered the condition of our clay banks and we have discussed the drying of the brick. Now let us take up the burning. What size can be most successfully burned? I maintain that a brick cut $2\frac{1}{2}$ inches thick, $8\frac{1}{4}$ inches long and 4 inches wide is the most serviceable brick from every standpoint. This brick would shrink by drying and burning to $2\frac{3}{8} \times 8 \times 3\frac{7}{8}$. In the first place, it is necessary to force the sand and clay mixture together with sufficient pressure to make them cohere to such an extent that they will dry and retain their shape. The smaller the die, the greater the pressure from the auger. In the second place this size is such that the heat, when applied, has no great distance to penetrate and the moisture is readily exhausted.

With our dense clays it is very essential that we make as thin a brick as is practical to work in a wall, thus giving our weak coal an opportunity to thoroughly burn these brick without warping or clinking. By this method we can present to the market bricks which are uniform in size, color, hardness, symmetry, etc.

Speaking of the size of brick, let us make a few illustrations to see what the making of these large bricks mean to us brickmakers. Take, for example, a brick $2\frac{5}{8}$ inches thick, $8\frac{3}{4}$ inches long and $4\frac{1}{4}$ inches wide, containing 100 cubic inches of clay. Suppose it requires 1,000 heat units to burn this brick. That would be 10 heat units to each cubic inch of clay. Carrying this further: If it takes 100 hours for the heat units to do their work, then the proportion is: 1 hour and 10 heat units to 1 cubic inch of clay. It burns to $2\frac{1}{2}$ inches in thickness, $8\frac{1}{2}$ inches in length and $4\frac{1}{8}$ inches in width. Now, what amount of efficiency for the owner is there in a brick of this size? It gives $2\frac{1}{2}$ inches in height, but it compels walls either 13, 17 and 21 inches, whereas 12, 16 and 20 inches are all that are necessary and all that are required by the city ordinance. The city of Philadelphia has an ordinance providing for three-story buildings with an 8-inch wall. It has been proven that more is unnecessary, so why waste clay, time, energy and valuable space?

Now, let us take a brick $2\frac{1}{2}$ inches thick, 4 inches wide and 8 inches long, containing 80 cubic inches of clay. If, to burn the $2\frac{5}{8}$ -inch brick 1,000 units of heat and 100 hours of time are required to burn this brick, this $2\frac{1}{2}$ -inch brick will require 800 heat units and 80 hours of time, or one-fifth less fuel and time. Now what efficiency has this brick in comparison to the former? When burned, it will occupy $2\frac{3}{8}$ inches in height, or one-twentieth less than the $2\frac{5}{8}$ -inch brick. My friends, to supply the builder with one-twentieth more in the height of a brick you and I have been expending one-fifth more in constructing it. We have expended one-fifth more time, energy and clay than is necessary from the minute we started to handle the clay until we delivered the finished brick on the job. And yet we wonder why we do not make money.

The excessive labor necessary in the handling of these large brick has made the brick yard a place to be avoided by laborers. It has given us the name of a lot of men killers. It has done still worse; it has driven men with an average degree of intelligence from the brick yard to other places of employment. It requires a vast amount of muscle, energy, nerve and backbone to handle these large brick and the wages have had to be so low that men who could do the work have left the yards and they have been replaced by a smaller, weaker and less intelligent class of laborers, thereby adding

another burden to the already bent shoulders of the brick manufacturer.

Let us consider for a moment what was asked of these men. An old established rule of all brick yards from time immemorial was 1,000 brick per day to each man employed. This necessitated that each man actually handling the brick must handle 7,000 per day twice, or 14,000 once. 14,000 of these brick, each weighing 5 pounds, would make a burden of 70,000 pounds, or thirty-five tons to be moved a distance varying from 4 to 8 feet in height and from 25 to 150 feet in length. Where are the men who can bear up under such a burden? By using the smaller brick we reduce the burden one-fifth. Instead of thirty-five tons, we have twenty-eight tons—a difference of seven tons in a day's work. Gentlemen, this is a factor that must be considered.

Suppose we look elsewhere for authority on this subject of size. What do city ordinances require in a brick wall? No where in any city ordinance that I ever heard of is a 9, 13, 17, 21 or any odd number of inches required for the base of brick buildings. They are always 8, 12, 16, etc. Based upon this fact, New York, the greatest brick using city of the United States, using from five hundred million to one thousand million per year, employs this size. Philadelphia, the city using the greatest amount of brick for inhabitants of any city in the United States, uses this size. Chicago, the flattest and most cosmopolitan city of the world, has adopted this brick. The same is true with Denver, where almost every home is of brick. Do you want more authority than this?

It is begging the question to say that now because we have machines we can make brick cheaper and better than we could years ago when all was done by hand labor. This, I deny in toto. I furthermore make this assertion without fear of being refuted that brick can be made today as cheaply and as successfully by hand as by machinery and in some cases more cheaply. Just as many men are required today as heretofore. We have merely changed the *modus operandi*. Today, instead of having the men truck the brick to an open yard, we spend \$10,000 on a dryer. At 7 per cent interest this is \$700 a year, or a man's wages. For fuel, we pay \$10 a day, or four men's wages. We spend another \$8 or \$10 per day for power and fans. Here is three or four more men's wages. The same is true with the kiln. The one and only advantage gained is that this artificial power, this machinery, this fuel does not go on a strike and we can have continuous production winter and summer.

Sometimes, however, the miner, the woodchopper or the machinist does strike. Gentlemen, we have not cheapened production. We have not worked for our own interest; we have not considered our employes; we have blindly gone ahead and our goal, our foremost aim in business has been to secure jobs from our competitors. To do this we have lowered the price of brick below a reasonable profit. In our scramble toward our goal, we have not noticed the changed conditions; we have not taken time to consider the wear and tear cost; we have scrambled on with our eye on the other fellow, watching to see him fall, not noticing how close we ourselves were to the precipice.

It occurs to me that we are a great deal like our raw material—all absolutely necessary to each other. When one brickmaker drops out, as has been the case with three well-known and highly honored brickmakers of our district in the last three years, instantly his place is filled by another, proving that the business, like the brick, requires a certain number of elements. I say, we are raw material—let's be bricks. Let's combine and grind and press together with the machinery of common interest a perfect brick, casting away the pebbles of hatred and distrust. Dry this brick with the energy now wasted in watching for the failure of the other fellow. Burn it into a perfect organization with the heat units of common sense now being generated at this convention—so that hereafter it may be said that the brick men are endowed with the most common sense of all—they waste nothing—not even hot air.

One great trouble with cumbersome legal and legislature efforts to investigate the high cost of living is that they also cost too much and take too long to obtain results which are never entirely satisfactory.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.

LOTS OF TALK, but not an awful lot of real 'doings,' is the way one prominent material dealer in Chicago characterized the first half of July, in an off-hand chat the other day.

At that the most pessimistic would scarcely dare to infer that whatever slackness there may be in the local building market just now is anything beyond the ordinary mid-summer dullness.

"July and August are always fairly rotten anyway," is a remark common among material men.

The architects' offices appear to be very busy, and the general outlook is considerably better than at this time last month. Figures asked for now, it is predicted, will mean contracts let before another thirty days. In addition to the normal mid-summer season, large loans have not been the easiest to float in the last sixty days, although the tension is reported to be letting up a little now. The real estate market is reported as fairly active, and this condition generally bodes well for the building fraternity.

The biggest project on the horizon is that for a new home for the Chicago Board of Trade. There has been much talk

New enterprises are constantly starting up, and new concerns seeking sites here.

All in all, the situation is far from discouraging, and the outlook for a busy fall is good indeed. SCRIP.

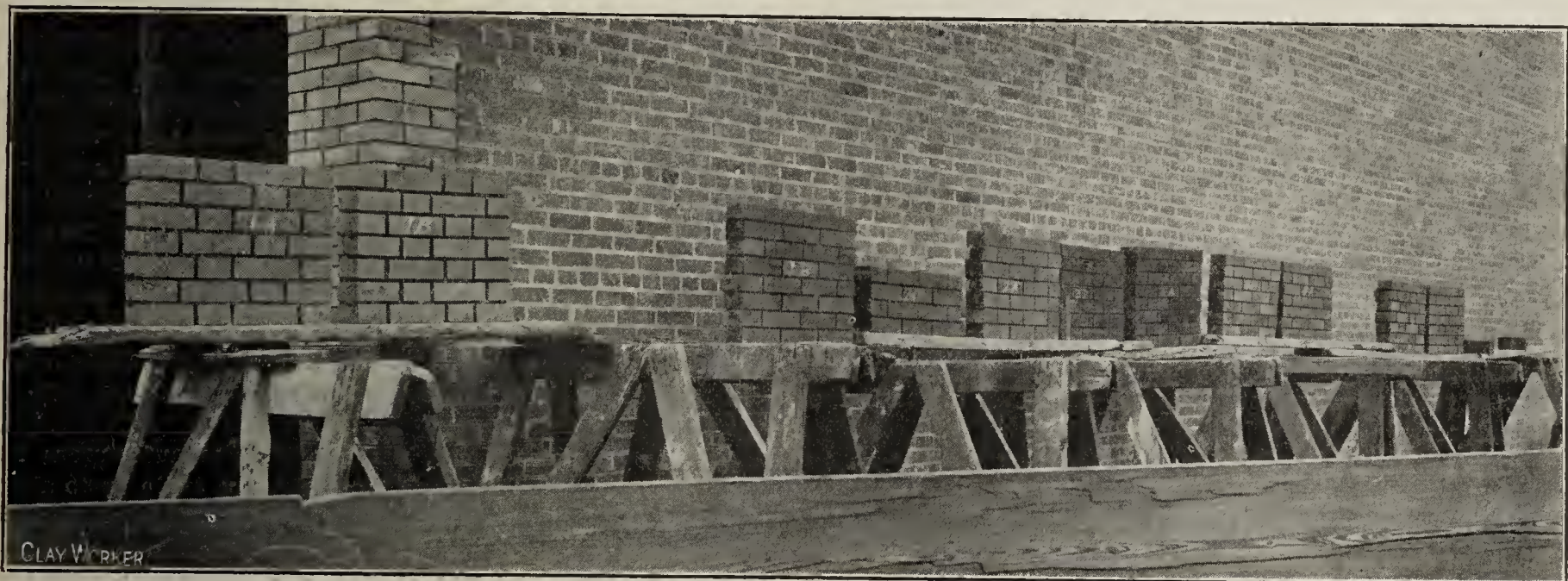
Written for THE CLAY-WORKER.

A NEW IDEA IN SUBMITTING BRICK SAMPLES.

Competition among brick companies in the big cities of the country is becoming keener all the time.

In Cleveland a new idea has been put into practice in competing for big jobs. Prior to the letting of a contract for the brick for the new \$150,000 temple for Cleveland Elks, the building committee was greatly perplexed in choosing brick from the samples submitted. It was finally suggested that the various companies submitting samples have them laid up in panel form, side by side, and merely labeled with a figure or letter.

This was done, and the committee made an inspection of the various brick, finally selecting the Everhard brick, made by the Everhard Brick Company, of Massillon, Ohio. The sample was submitted by the Contractors' Supply Company, of Cleveland, which concern will supply 100,000 first quality Everhard brick for the new building. Eleven panels were



Sample Brick Submitted to Building Committee of Cleveland Elks.

of this building since the winter of 1909, but it is now very close to a focus, it is believed. Present plans call for a \$5,000,000 structure to replace the not unpicturesque but rather out-of-date old landmark which now stands at the head of the city's great financial mart. The new building probably will be twenty stories high.

The business district continues to spread out west and south from the big "loop" district center. At the northeast corner of West Adams and South Peoria streets Schoenbrun & Co., wholesale tailors, are putting up a modern manufacturing building, faced artistically with dark Oriental brick, and a number of small buildings of a similar character may be observed along Wabash and Indiana avenues.

This tendency in building, by the way, is most wholesome, and is accomplishing more for the sanitary welfare of the city than could any number of scientific commissions on "city planning," for before the onward march of commerce and industry the old filthy tenement houses, breeding places for disease and crime, have had to give way. The tenants have been forced to move further away from the city's heart, and into domiciles the general condition of which was a vast improvement over the old.

Still further out, especially along the lines of the "belt" railroads, factory building is going on at a fairly lively rate.

built up to choose from. The practice, it is expected, will become general, as the building committee is thus able to judge a brick purely on its merits.

SOME USES OF FELDSPAR.

The principal consumers of feldspar, according to a recent survey bulletin, are the pottery, enamel ware, enamel brick and electrical ware manufacturers, its most important use being as a constituent part of both body and glaze in true porcelain, white ware and vitrified sanitary ware, and as a constituent of the slip (underglaze) and glaze in so-called "porcelain" sanitary wares and enameled brick. The proportion of feldspar in the body of vitrified wares usually falls between 10 and 35 per cent. Its melting point being lower than that of the other constituents, it serves as a flux to bind the particles of clay and quartz together. In glazes the percentage of feldspar usually lies between 30 and 50. The trade demands that feldspar for pottery purposes be nearly free from iron-bearing minerals (biotite, garnet, hornblende, tourmaline, etc.), and that it contain little if any muscovite. The requirements in regard to the percentage of free quartz vary with different potters. A few manufacturers of the finer grades of pottery demand less than 5 per cent. of free quartz, and may even grind the spar themselves so as to be sure of its quality, preferring to insure a constant product even at

higher cost by themselves mixing the requisite quantity of quartz with the spar. Most potters get satisfactory results with "Standard" ground spar carrying 15 to 20 per cent. of free quartz, and in some acceptable spars the percentage runs even higher. In the finely ground mixture as it comes from the mills it is difficult to separate the quartz from the feldspar by physical methods on account of the extreme fineness of the material. Chemical analysis seems to be the readiest means of determining whether its percentage is high or low.

Feldspar is also used in the manufacture of emery and carborundum wheels as a flux to bind the abrading particles together—Exchange.

SEMI-ANNUAL MEETING OF THE BOARD OF DIRECTORS OF THE BUILDING BRICK ASSOCIATION.

THE BOARD of directors of the Building Brick Association held their semi-annual meeting in Pittsburg on June 7, at which time the drawings for the competition conducted through the "Brick Builder" for a brick house of moderate cost were judged.

In response to this competition they received 312 designs from architects scattered over the entire United States, Canada and even from England. This is the largest number of designs ever secured by a "Brick Builder" competition. No stronger proof could possibly be given by the architects that they are interested in brick—that they believe in it, and that they desire to use it.

These designs represent every kind of a small brick house. They embrace every style of architecture. Taken together, they form the greatest collection of small house designs ever made in this country.

The directors were unanimous in their enthusiasm over these designs; this was not a matter of local opinion—the members from Alabama, Ohio, Nebraska, from New York and Illinois were all agreed that the results of this competition, if properly exploited before the public, will become one of the most powerful influences for good which has ever arisen in the brick business.

The plan of the Association is to publish 72 designs in their forthcoming book entitled "A House of Brick of Moderate Cost." The prize designs to be shown in this book can be built for \$4,000 each. The other designs will vary in cost from \$3,500 to \$7,000, giving a range of style and cost to suit every condition. There is no town in the country where some of these designs would not be appropriate.

Accompanying these designs the book will contain four articles, written by a very clever magazine writer of New York, on the following subjects:

"The Beauty of a Brick House."

"The Brick House Safe from Fire."

"The Maintenance of a Brick House."

"Frame or Brick—Which?"

The above articles will also be published in pamphlet form, and in addition to this the Association will publish a pamphlet entitled "A Revolution in Building Materials," giving the reasons for the impending change from wood to brick.

The literature of the Building Brick Association will without doubt be the finest trade literature ever published, and to get this literature before the public it will require considerable money, and the Association is looking to the brickmakers each and every one to give their financial support to this work.

The fee for joining the Association is very small for each individual brickmaker, but collectively will make a large sum, and with this money the Association proposes to start its advertising campaign in the fall magazines, beginning in September in such papers as the Saturday Evening Post, Country Life in America and the Ladies' Home Journal, and many more if the brickmakers will join the Association and put up their pro rata share.

All inquiries received from advertisement will be followed

up. Free literature, reprints of the articles in this book, copies of "A Revolution in Building Materials," etc., will be sent to every person, and the names of all persons answering the Association advertisements will be tabulated and mailed to the members of the Association for their personal follow-up.

This is a real live campaign, carefully thought out and ready for execution. The Association has the literature—the best and most efficient in the history of brickmaking—but they must have funds necessary to make it effective.

Send in your order at once for sample copies of the literature as follows:

"A House of Brick for \$4,000".....	50 cents.
"A House of Brick for \$10,000".....	25 cents.
"The Beauty of a Brick House".....	5 cents.
"Maintenance of a Brick House".....	5 cents.
"Brick House Safe from Fire".....	5 cents.
"The Choice—Frame or Brick".....	5 cents.
"A Revolution in Building Materials"...	5 cents.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

THE BRICK MARKET in New Jersey has improved in sympathy with the market in New York, and sales have increased somewhat. Demand for Raritan River brick for use on the large buildings now going up in the New Jersey cities has kept prices relatively firm, and has developed conditions which are much more promising than they have been for several weeks before. As a whole the situation in New Jersey is rather better than it has been for a month or so, and, with some of the new contracts which are now coming out to stimulate the trade, there is indication that improvement will continue indefinitely. Nearly all manufacturers in New Jersey report good orders, with \$6.25 to \$6.50 paid for the best stock. The poorer qualities are somewhat lower, though occasionally there is a drop on some of the better sorts. As a whole, however, that is uncommon, and the market is in a healthy condition, with prices firm as quoted.

It may be pointed out, perhaps, that manufacturers are operating conservatively, and that sales are made up to about the limit of production every week. For instance, at Hackensack only a few of the makers are operating their plants up to full capacity. The rest of them are taking such orders as come to them, and keep their plants running under only a fractional capacity. This exerts some influence in maintaining prices, and has helped the market materially ever since the season opened. The use of brick is heavier this season than it has been for any year before, so far as building operations are concerned, and with conservative action on the part of the manufacturers a continuously profitable market is looked for. There would speedily be trouble if the manufacturers turned the product of their plants upon the market in an unlimited quantity.

One of the events of the month was the convention of the Brotherhood of Potters at Atlantic City. The business they transacted was largely routine, and concerned the administration of the association's personal affairs. One thing was sensational. They passed resolutions which are calculated to discourage members to enter the National Guard. Here are the resolutions:

"Whereas, The military organizations of the several States having been organized and maintained at an enormous expense, ostensibly for the protection of the persons and property of their respective citizens; and

"Whereas, The use of such organizations has been perverted from their original purpose to that of protecting corporate interests by inciting riots and committing assaults on and imprisoning of organized workmen during their struggles for the betterment of their condition; therefore, be it

"Resolved, That we use every honorable effort to discour-

age all wage earners from joining all such organizations, because we believe they are being used to defeat the purposes of organized labor."

This resolution was up last year, but failed of passage. Ninety-eight other resolutions were passed, some of them relating to the wage scale and others relating to different matters which interest the potters. The convention was productive of a good many warm discussions, but the principal interest centered around the one discouraging membership in the National Guard.

Demand for architectural terra cotta has increased wonderfully of late. The National Fireproofing Company is running its works at Keasby to the full capacity. Architects are calling for product which was not booked for delivery until next spring. The unusually heavy call for stock of this character has developed a firmer feeling in all departments, and sales have been larger and at better prices than previously. The situation has, therefore, improved materially during the month just past, and the outlook, according to the assertions of manufacturers, was never better. The conditions under which these manufacturers are doing business have become so much better than formerly that all have acquired more courage, and their expectations have increased during the past few months perceptibly. It is pointed out in some quarters that the demand for this class of clay product will increase rapidly during the next few months, and is expected to reach its climax during the coming spring.

The McEwan Brothers, at Whippany, have been sending out a good many carloads of finished product this season, though possibly not so much as they have during some previous years. A good many have been sold in Morristown, only a few miles away, a place which is developing with considerable rapidity. The recent introduction of the trolley and the construction of new sewers has had the effect of bringing increased population into this exclusive suburban community. Many structures, partly or wholly of brick, have been projected of late, and the prospects of improved building conditions during the years to come are promising.

The Homestead Brick Company, at Homestead, has enlarged its plant this season, constructing a large new shed and otherwise adding to its producing capacity. The brick goes principally to New York, and is shipped by rail, a side track running directly into the works. The clay is obtained from the meadows just back of the works, and the only drawback is it has to be raised from the pits, and the pits fill with water if left to themselves very long. The quality, however, is excellent, and the character of the brick manufactured is such as to commend them to the most conservative buyers.

The plant of the National Fireproofing Company, running on hollow tile at Port Murry, is operated to its full capacity. About fifty to sixty men are employed, and the orders ahead are sufficient to keep them busy for some months yet. The stock is shipped to various sections, though a good deal of it is utilized in New Jersey.

The Rockaway Brick Company, located at Rockaway, has had sufficient business to keep it busy this season, and has obtained a profitable price for its product. A considerable proportion of it is utilized at home, the increase in building operations there consuming about all the firm makes.

The Rosehayn Brick Company, Rosehayn, employs about thirty men this year, and finds a reasonably active demand for its product in the territory immediately around its plant.

Sayre & Fisher, of Sayreville, employing something like 1,500 men, have been operating their plant to its capacity most of the time since the season opened. The company's product is shipped to New York, Philadelphia and intervening cities and towns in New Jersey, and such is its quality that a customer once obtained is always retained. Some of the big building contracts of New York have been supplied with brick from these works.

Edwin Furman Company, Sayreville, has been running

their plant to its capacity most of the season. They have some 200 men at work, and the number may be increased rather than otherwise. The product goes to New York or Philadelphia, with some of the orders used by cities in New Jersey. It is said that there has been no difficulty of any kind in disposing of all the plant could turn out. A. L. B.

Written for THE CLAY-WORKER.

COLLECTIONS AS HINDRANCES.

ON MANY SIDES and in many lines of business we hear complaint that slow collections are a hindrance to more extensive operations, and partly responsible for business dragging somewhat. Because of this, and the fact that there has been more or less sluggishness and a world of uncertainty about collections since the late financial troubles, we have been doing some serious thinking about credits and collections, about the cash business and the other side of long extended credits. There was a time, not so many years ago, when there was quite a campaign of agitation in favor of getting everything on a cash basis. It was and is still regarded as the clean, ideal way to transact business. The trouble with it all is that to do everything on a strictly cash basis would restrict business transactions wonderfully, and there is lots of business being done now that would not be done. In other words, it is the judicious extending of credit that is responsible for the upbuilding of a great percentage of trade everywhere. Just what percentage it is impossible to say, but that it is something enormous any one familiar with merchandising well knows.

In the old countries and their trade relations with international traffic we have an example of the workings of extended credits in a larger trade. They take the South American republics and sell them lots more goods than the United States does, and they do it largely by virtue of the fact that they give long credits. We find upon further investigation that generally the older the countries and the more firmly established the institutions, the longer credits are extended. Consequently, there is no getting around the fact that credits make trade. And any effort to shorten or restrict credits will immediately be felt in a falling off of trade and the slowing down of industries.

But here is the keynote to the situation, and probably in it is the explanation of the weak part in our own credit system. Where credits are given they should be for a specific time, and closed up in some form that every man can know just when to expect returns on this account and that one. The weak point in the trade here has been the giving of credits without definite time, and out of this has grown an uncertainty about collections that keeps a business man on the anxious seat all the time. He doesn't know when some customer is going to pay him, and doesn't want to risk offending the customer by urging payment at a certain time. So the thing keeps dragging, and it is disorganizing all the time. Some good business men are going at this more systematic now. They are arranging to extend credits after investigating and finding the customers are entitled to them, but in doing this they put it in definite form. Close accounts with notes due certain days, and insist on the notes being met promptly on the date they are due. They would rather take a note for three months and have it met promptly at the expiration of the time than to take one for two months and have the customer say he would try and take it up but was not sure.

The right idea is to get it on a positive basis; then it is comparatively easy to arrange with banks, negotiate the accounts, and keep the business in good, clean shape, so that a man can know what he is doing and shape his own indebtedness accordingly. What we seem to need, therefore, is not so much a getting closer to a cash basis as a getting on to a specific and orderly credit basis, so that a man's accounts, instead of being open and uncertain, will be good and reliable.

Written for THE CLAY-WORKER.

THE ST. LOUIS BRICK SITUATION.



THE CLAYWORKING industry is in fairly good shape. Operations are going on all the time at the various plants, and stocks are being accumulated for future requirements. Trade has been quite good ever since the building season opened up. Sales, however, have dropped off recently, but it is thought that this is only temporarily. Deliveries on orders placed some time ago are steadily going on, and there is every indication that the season will be a big one.

While the building operations for June, according to the report of the building commissioner, showed a decrease as compared with the corresponding month of 1909, yet a perusal of the classified statement of permits issued during last month indicates activity in various lines of the business.

One feature of the June operations was the number of residences gotten under way. The report shows 106 permits issued for dwellings, each costing less than \$20,000. One dwelling for \$25,000 was contracted for. Permits were taken out for ninety-six frame dwellings.

The report also shows \$24,011 was spent on altering thirty-six brick dwellings. Some of these were converted into flats, others modernized.

The permit for the alterations to the building on Washington avenue, between Eighth and Ninth, called for an expenditure of \$220,000. The structure, covering the block, is for a big department store.

A decrease in the moving picture shows was noticeable in June. In May permits were issued for eighty-one of this class of structures. Last month only four permits were taken out.

The total operations for the month amounted to more than \$1,880,000, against \$1,901,000 for June of 1909.

The building commissioner declares St. Louis will show up favorably with other large cities in building operations in June.

The decrease in St. Louis is partly due to labor conditions. The strike of the union painters in the early part of the summer, and later the threatened strike of the reinforced concrete workers, and the present strike of the sheet metal workers, has caused many builders to hold off.

In Alton, Ill., all work in building lines, except that being done by a few independent contractors, has been suspended. The members of the Alton Builders' Exchange have laid off their employes. The lockout was the result of the refusal of the union men to acceded to the ultimatum of a contracting firm. The Exchange members claim that they had taken the lockout as a means of enforcing a rule that bosses shall not work. The Exchange has declared an open shop. It is not known how long the strike will last.

The Laclede-Christy Clay Products Company say business is very satisfactory in their general line of business. Fire brick and other clay specialties are selling well.

The St. Louis Vitified and Fire Brick Company are sinking a 150-foot air shaft at their clay mine, which, with their factory, is located a few miles beyond the city limits. They say that business in their line is quite good. Orders are plentiful for fire brick and for their various fire clay specialties.

H. K. Lackland, of the Laclede-Christy Clay Products Company, returned recently from a trip of a couple of weeks, during which most of his time was spent in northern Pennsylvania, among the iron and steel and other metallurgical industries.

George W. Jones, secretary of the Evens & Howard Fire Brick Company, says their business is normal for this time of the year. Inquiries are numerous, and indicate that future business will be good. A fair amount of business is now being done. The sewer pipe demand is excellent.

Anthony Ittner, president of the Anthony Ittner Brick Company, says they are busy delivering brick sold some time ago, which are now being called for by the contractors. The present

call for brick has fallen off slightly, but it is only for the time being. The prospect for many big apartment houses and manufacturing plants to be erected in the near future will create a good demand for material later.

The various contractors say that building is quite active, and from the contracts on their books this condition will continue all through the summer. The alteration of quite a number of big buildings in the down-town district is being figured on, work on them to begin shortly.

A. SAINT.

Written for THE CLAY-WORKER.

AN INTERESTING OKLAHOMA BRICK PLANT.

ABOUT ONE mile south of Ada, on the M., K. & T. R. R. (the Katy), is located the plant of the Ada Pressed Brick and Tile Company. The plant changed hands about a year ago, and the present owners are Cooper & Bones, formerly of Guthrie, Okla.

Mr. Cooper is a contractor and Mr. Bones is a brickmaker of many years of practical experience, originally coming from Ohio, from where some mighty good things have come, even presidential timber.

The plant was formerly run with a 75 h. p. electric motor, but has been changed to steam power by the present owners.

The outfit consists of a four-mold Ross-Keller dry press and a 60,000 capacity stiff mud machine from the famous



Clay Field of the Ada (Okla.) Pressed Brick and Tile Co.

shops of the American Clay Machinery Company, Bucyrus, Ohio, a 9-foot dry pan, stationary slanting screen, 100 h. p. engine, and one 125 h. p. boiler.

They manufacture pressed brick, stiff mud brick, partition tile, building blocks and drain tile. The burning is accomplished in two up-draft kilns of 300,000 capacity and two 30-foot down-draft kilns, and more kilns are being constructed to take care of the increased capacity.

A steam dryer is also in course of construction along the idea of the company's own design.

We predict a profitable future for the present proprietors, as they are going at it in the right way, that is, figuring on doing things, then going ahead and doing it, moving all stumbling blocks out of the way.

A. V.

POTTERY WORK TAUGHT AT THE KANSAS UNIVERSITY

Twenty-five girls at the University of Kansas, Lawrenceville, have finished the first term of pottery turning that has been offered by the university. The work this year has been entirely by hand, but next year work will be done on the wheel. The clay used was taken from Mount Oread. Miss Martha Benson, of Tulane University, had charge of the class.

BUTTON HOLE TALKS.

Working Up an Outing.

Which would you rather be, cynical or silly? You can take your choice, maybe. Then again maybe you can't help but be just what you are, or just what nature intended you to be. Anyway, some people are cynical nearly all the time, some only part of the time, some are silly nearly all the time, and some merely indulge in silliness as a recreation.

All of this is a preface, a sort of winding up the machinery to tell about how the Optimist worked up an outing. For nearly a month the Optimist had been caught periodically gazing listlessly out the window, which was something unusual for him, for he was generally alive and keenly interested in what was going on around him, but the answer was found when it was noted that he was quietly gathering up illustrated pamphlets of various summer outing places.

Finally one day the Cynic got after him about it. That was like a cynic, to always be getting after somebody about something.

He made the Optimist 'fess up, and what he 'fessed up to was that he had a mighty strong hankering, not for some of the popular summer resorts, but to get out in the woods among the streams, 'way out apart from civilization.

Incidentally he told the Cynic that he once had an outing



Glimpse of the Plant of the Ada Pressed Brick and Tile Co.

that remained as a cherished spot in his memory. He and two other fellows had taken a boat and made a trip a hundred miles down through the forest country in a clear stream of water, with blankets and a few cooking utensils, camping out wherever they took a notion, and going on aimlessly until they were tired of the rambling, after which they disposed of the boat and returned home by rail. He said it was great, and the only real vacation. He felt the woods and the streams calling him again. Not to some fancy resort, where people dressed up and tried to look comfortable, but 'way out in the woods, away from civilization and close to nature, so that a man could forget about starched clothes and collars and ties, and simply roam wild like an Indian.

The Cynic listened to all this patiently, because he knew he was going to have his inning soon, and the more the Optimist said the more room it left for the Cynic to say something back. When he got through the Cynic said:

"That's a mighty nice pipe dream of yours, Op, but it is simply a mental delusion. You think you want the woods and the rippling streams, but about twenty-four hours of it and you would want the comforts of civilization again. It is simply your imagination playing pranks during the heated term,

and exercising itself before your tired brain. You think there never was a time equal to it or a pleasure that compared to that of wallowing around in dirt on river banks and paddling a canoe, fighting the skeeters at night and doing your own cooking, but when you go to trying it you won't like it, and you will be mighty anxious in a few days to come back home, where you have all the conveniences—good ice water at hand, and a bath tub, and toilet articles, and all the other conveniences that you don't appreciate because you are so accustomed to them."

FLIRTING WITH THE SPIRIT OF YOUTH.

It didn't make any difference if the Cynic did have his inning and say disagreeable things; the Optimist was used to them, and shed them like a duck shedding water, and went around beaming and exuding an enthusiastic desire to go for an outing among his friends until he had worked up quite a party, and finally they all went camping 'way out at a spot that he selected on the banks of a stream in the woods, far from civilization, and the strange thing about it is that the Cynic went along, too. He might say things and kick, and vow it wasn't inviting, but, like lots of other people who act the same way, he really wanted to go; otherwise why did he?

Now, strange to say, when they get to the camp the Optimist, who had been the leader in working up the outing, was more reserved and dignified than anybody else, while the Judge, whom he had hesitated a while about inviting, for fear it would not be compatible with his dignity to camp out and rough it, had been acting like a two-year-old or a schoolboy and flirting with the spirit of youth generally immediately after he started, and kept it up almost incessantly. He led in pillow fights at night, had been prolific of practical jokes, and had created as much disturbance in the wee small hours of the morning as Peck's Bad Boy ever thought of.

The Cynic and the Optimist were standing watching the Judge and the Business Man, who were out with the youngsters playing leap frog and cutting all the other shines of youth. Finally the Cynic remarked:

"It is all right to enjoy things when you can just naturally enjoy them, and to flirt with the spirit of youth when you have the same kind of a spirit in you at the time, but it is plain on its face that the Business Man is forcing his hilarity, and it is just about as cheerful as a forced smirk on a waiter or an actor that think to impress you, and who imagine they are fooling you into thinking they are pleased when they are fooling nobody but themselves."

"That may be," the Optimist replied, "but I am beginning to discover one thing, or at least I think I am, and as soon as I am sure I am going to follow up the discovery. That one thing is that if you want to renew your youth the way to do it is to act like a youngster would act, even if you have to force yourself to it at first. Force yourself to chase lizards and other things. Do it anyway. It may be forced and awkward at first, but if you just keep up the practice long enough, by and by you will just naturally enjoy doing these things."

"When you get to that point," the Cynic said, "you will just naturally get to acting silly, like the Judge is acting. Can you imagine anything more contrasting than the Judge's actions here and when he is at home in the bosom of his family, or when he is on the bench?"

"Well," the Optimist replied, as he was pulling off his coat and preparing to enjoy the general youthful sportiveness, "I believe, for a while, at least, I would rather be silly than be cynical."

Now you know why the question was asked at the beginning: Which would you rather be, silly or cynical?

It might be well to keep an eye on the concrete man. It is difficult to tell what he may do, though if he is watched he will not do any permanent harm. Concrete construction is pretty generally discredited.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Making Brick in South Dakota.

Editor THE CLAY-WORKER:

I have just been reading some of the letters in your correspondence department from fellow brickmakers in various sections of the country, describing their brick yards, and I wish to bring another into the circuit.

This is a new company just starting out. The yard is located at Mina street, where good brick material abounds in enormous quantities. The material from which we propose to make brick is a shale containing a large per cent. of manganese of iron. The manganese, when burned with the shale, will fuse, adhering to the shale, causing it to unite into a firmer bond than without it. The shale burned alone makes a first-class brick. We propose to make a pressed brick, suitable for facing brick.

We have ordered a Fernholtz four-mold press, and are going to crush our shale with a dry pan, as we believe that is the most satisfactory method of crushing it. Brick is a scarce article in this vicinity, so we are going to case up our first kiln with green brick, so you see we cannot expect a very good burn on the first kiln. We are only going to fill a small kiln at first, simply enough to build a second kiln; then we are ready for business—more kilns, and expect a better burn.

Yours truly,

Aberdeen, S. D.

W. B. CRAVEN.

The Mid-Year Meeting of the American Ceramic Society.

Editor THE CLAY-WORKER:

The American Ceramic Society will hold their summer meeting at Akron, August 17, 18 and 19. On Wednesday, August 17, they will visit the clay factories located in East Akron. On Thursday, August 18, they will visit the Goodrich Rubber Company and the clay works in South Akron. On Friday, August 19, they will visit Barberton.

In East Akron the Society will visit the chemical stone-ware factory of A. J. Weeks, the large forty-four-kiln stone-ware plant of the Robinson Clay Products Company, a small plant of the American Sewer Pipe Co., and the plant of the Summit China Company. On Wednesday evening the members will gather at the hotel to meet the local people in an informal social gathering.

On Thursday morning the party will visit the very extensive plant of the Goodrich Rubber Company. At this plant they employ five thousand hands and are building extensive additions. A visit to this plant will indeed be a rare treat, not only because most of the members have never seen rubber goods manufactured from the crude material, but also because of the processes being akin to plastic processes. In the afternoon of Thursday the party will visit the Colonial Sign and Insulator Works, J. L. Clamp Fireproofing Works, and the Windsor Paving Brick Factory.

Clustered with these last three factories is another of the American Sewer Pipe Factories, through which the Society has been granted privilege to go. On Friday morning the party will go by trolley to Barberton, and there see one of the largest of the American Sewer Pipe Factories, and the Babcock & Wilcox extensive boiler works. It is hoped that privilege will be granted to visit the Diamond Match Com-

pany, and the chemical works where soda ash is manufactured. The red tape necessary to gain admission to these latter two plants is being unwound, and everything points favorably toward the Society gaining admission to them.

The American Ceramic Society has held these informal summer meetings annually for some time now, and many of the members look upon it as one of their fixed summer pleasure trips. There will be no formal presentation of papers nor transaction of business, the time being devoted entirely to the inspection of plants and social meetings. A cordial invitation is extended to all clayworkers to meet with the Society at these times. A bulletin giving detailed information can be secured by applying to Ross C. Purdy, Ohio State University, Columbus, Ohio.

It is almost unnecessary to refer to the advantages of such a meeting being held in Akron. The Society will not have time to visit many of the plants there located; a large variety of clay wares is manufactured in Akron and vicinity; the rubber manufacture is the principal industry of Akron; in fact, Akron is the principal rubber manufacturing city in America. There are three rubber manufacturing plants in Akron, which employ more than four thousand men and women.

The large boiler works of Babcock & Wilcox and the very extensive plant of the Diamond Match Company are alone worth the expense that one would incur in making this visit with the Society. Very truly yours,

Columbus, Ohio, July 13.

ROSS C. PURDY.

Lamination, Its Cause and Remedy.

Editor THE CLAY-WORKER:

There are many causes which affect brick, among which is lamination. I have been in the clay trade all my life, and that means thirty-five years, and I have always made it a study to get at the root of any faults which I have come across. The letter written by Neitzel is one which I should judge is written from theory; it cannot come from practice, as the cause given in his letter does not go far to show that he understands what lamination is. Just fancy getting lamination in a sandy body of clay! I myself never heard of any kind of sandy clays laminating. There are firms this side of the water which use either a good sand or a certain per cent. of grog, which is just the same thing, to do away with lamination.

No doubt there are men who will agree with me when I say that a weak plastic body laminates more than any other body. I notice that Neitzel advises the use of steel-faced worm or auger as a remedy. Now, let me tell him that a weak plastic body of clay would not work on steel; the only worms and the best worms are the cast iron. The fault in Neitzel's case is caused in his die. There is too much pressure on. The taper is too large. The taper on a die to make brick from a sandy body of clay does not want to be large, or the openness of the body will pull on the outside of the brick and allow the center to travel the faster, therefore causing the air to get in the clay.

Now, to verify what I have said, I will give the dimensions or size of a die made from white pine lined with moleskin. The length of the die should be 9 inches; then give 3-16 of taper from front to back on the width and $\frac{1}{4}$ on the depth. Try this, and I am sure that you will have no lamination in any sandy body of clay. If using a weak body of clay, the clay wants more tempering, as, being tough in body if not properly tempered, it will form in small lumps, and there will be several stiffnesses in it, so that the stiff will not shrink along with the soft parts. Therefore, there will be formed in the middle two shrinkages of stiff and soft clay, and this will form lamination of the worst kind. Sometimes, by drying this kind of clay gently and having it perfectly dry before setting will do away with the lamination to a certain extent. There are firms which go in for making a large quantity, and they

never think about the quality. Now, when quantity is wanted there ought to be quality too. All that is wanted is more machinery for tempering. If the machines are put down to make from 18 to 20 M a day, don't try to make 30 M with the same machinery. I know a firm which makes 30 M per day without any lamination. The reason is they put the machinery down to temper the clay properly. There are two pairs of large rollers, then an eleven-foot mixer, then two more pairs of rollers, then another eleven-foot mixer, then a pair of small express rollers on feeding part of brick machine, so that the clay gets properly mixed. By getting properly mixed we find no lamination. Before putting the express rollers on the machine we could not make 20 M a day without lamination showing.

I have had charge myself of the same yard for eleven years, so I speak from my own experience. I find that drying gently and well has a great deal to do with stopping lamination. The body of clay I used was very plastic and very difficult to work without showing lamination, but the more difficulty I have to contend with the better I like it, as it enlightens one and gives experience which one would never think of studying out. I like studying anything connected with clay and anything made from it. I could keep up writing on this subject for a long while, but I have no time to write more now.

Yours, a well-wisher to the trade in America.

H. W. HARDY.

Up Versus Down-Draft Kilns.

Editor THE CLAY-WORKER:

Mr. Anton Vogt seems to think he is some wheel on a chariot, while I am only a fly taking a ride. Well, I believe I had rather be taking a fly-ing ride than to be the wheel, for, like the Irishman rolling down the hill on a barrel, I would be on top half the time anyway. Mr. Vogt says it would be more businesslike to construct a few such cheap kilns to demonstrate that he is able to sustain the claim he sets up. By all means this is the right thing to do. But from the tone of the paper read by Mr. Vogt I took it for granted that this had already been done. You say you have had sad experience in showing. I can sympathize with you fully on that point, Brother Vogt, and I can appreciate your remarks along that line all right. Did you say that he often got no thanks? Nay, quite often when the man of practical experience has shown some of them enough that they think they can dispense with his services. If you will excuse a slang expression, he gets it where the chicken got the ax. But it sometimes happens that they find out later that they have "killed the goose that laid the golden eggs."

I am glad that you feel that we must have better kilns than up-draft kilns, because a man that wants to better the brick business in any way whatever is a man that is going to do something, and that something will help all of us, directly or indirectly. So I say, all hail to the man who is not satisfied with what we have, but wants us to have something better, and let me say to you right here that you will not find any one who is more ready to give you credit for any improvement you may make than the writer. I have been up against the fellow who is prejudiced against everything except what he has been used to. Having traveled for a number of years, building and burning patent kilns, I struck some very hard customers on this line. You ask me or some one else to figure out the cost of a Philadelphia up-draft kiln. I don't know why you singled out this type of kiln, but I will say that I have never built this type of kiln, but have built some very similar to it of 350,000 capacity for \$1,000 complete. And I have also built a better kiln with furnace attached, of same capacity, at a cost of \$1,200 to \$2,000, depending upon the cost of labor, etc. And I have burned dry press, stiff mud and soft mud and terra cotta in these same kilns as good as any down-draft kilns I have seen. Now mind, I don't say as good as yours will burn them, because I don't know. As for the

cost of fuel and labor, I have never been able to figure out any difference, except in favor of the up-draft kiln. As for the cost of putting on and removing platting, I figure that this item is entirely offset by the inconvenience of handling the product to and from the down-draft kilns. You seem to be very much concerned over the fact that I was intimately acquainted with a continuous kiln man, and intimate that I am interested in that type of kiln. Why, bless your soul, brother, I'm interested in every kiln in that way. I am always glad to see something new if it is an improvement over something else. You state you will not say anything against the continuous kiln now. Why say anything against it now or any other time? It has its place, and burns mighty good brick, and does it cheap, too. You say when you defend the down-draft kiln you have in mind such kilns as will deliver the goods, and that can be built cheap by the small as well as the large brickmakers. I fear your figures as given will have to be revised before some of us can adopt your cheap (?) down-draft kilns. You say we must have something better than up-draft kilns. All right, brother, trot her out. I take it for granted you mean all up-draft kilns. As of course your down-draft kiln is better than any other, it would not be fair to single out a poor up-draft kiln to compare it with. As there are down-draft kilns and down-draft kilns, so there are up-draft kilns and up-draft kilns. And as for cement brick and block, don't you lose any sleep over them, or of the up-draft kilns burning soft brick. Why, I am loading hard brick for salmon every day, just because we can't get enough salmon to fill orders. Burning in up-draft kilns, too—and not the best up-draft kilns in the world, by any means.

You speak of brick crumbling in the walls, and say that such brick are the product of up-draft kilns. For the sake of argument we will grant that they are. Do you know for a certainty that it was the fault of the kiln? May it not have been the fault of the burner, or may they not have had any burner at all, only some shoemaker or tailor or tanner that saw some one else making brick and a little money and decided it was so blamed easy he would do it too? I could show you hundreds of buildings that are the result of just such things, and such buildings should fall down about the heads of the owners, for quite often they buy brick made by such concerns described above because they are a little cheaper in preference to buying well-burned brick from a responsible concern.

Let me tell you what I saw on a plant in the West some years ago. They were using both up and down-draft kilns. They burned one down-draft kiln, and it was hard and as fine a kiln of brick as I ever saw. The next down-draft kiln they burned there was not a hard brick in it. Was it the kiln? The clay was the same, and they burned more fuel on the soft kiln than they did on the hard kiln. No, brother, you know it was not the kiln at all. The trouble was the kiln was not fool proof. What the brick plant needs most of all is a competent burner, and then if you have a good kiln of any type he will get good results.

I did not enter into this for a controversy, either for or against any kiln, for I believe that they are all good—I mean the good ones of any type. So here's to them all. The down-draft, the up-draft, and the continuous. May their respective advocates be so wide awake and so filled with enthusiasm that they may each bring their kiln to such a state of perfection that the cement men shall be obliged to take to the tall timber.

Yours for good brick—the best building material the world has ever known.

ELIAS PETTS.

If the farmers keep on digging into science and training their youngsters in chemistry, the farming industry will be galloping along after and trying to claim class with the clay-working industry in a few more years. When that time comes the farmer will build his house of brick and use clay tiling without question.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

Can Common Up-Draft Kilns Be Fired With Producer Gas?

In all other arts where producer gas is used, its successful and economical application depends upon the introduction of a "regenerative" element. Iron works, steel works, glass works and continuous kilns. As "regenerative" elements exist in the common up-draft kilns, producer gas will not be successful in a commercial way as relates to economy.

What Is the Best and Cheapest Method of Eliminating Whitewash From Dry Pressed Brick?

Have the minimum amount of moisture present in the clay consistent with the quantity needed for pressing and properly drying off, so that no excess of moisture can deposit on the ware. Of course, these advantageous conditions have to be modified more or less, dependent both upon the chemical constituents of the clay as well as the physical structure of same.

Is It Practical to Dry Brick With Waste Heat From Burning Kilns With Inlets and Outlets Through Tunnels?

As long as there are no sulphur fumes present in the products of combustion, there should not be any difficulty, provided the draft conditions are properly taken care of. The best proof that such things are done is to visit plants where it is done. It is being done today in the city of St. Louis and the writer visited a plant at Ottawa a number of years ago, where such a process was carried out successfully.

Is It Possible to Burn Brick Which Swell in Burning in a Continuous Kiln, Etc.?

If the kiln is properly constructed, properly handled and properly set, there should not be any difficulty. It is not a question of process, but nominally a question of quantity, and in turn a question of capacity. It is but reasonable to believe that when such a proposition is handled successfully on the continent European, that it can also be done here. All that is necessary is to have capacity to take care of the quantity.

Should Fires Be Kept Thin or Heavy on Grate Bars?

It is the universal practice, and counted as good practice, to keep the grates well covered to insure good combustion. When fires are kept too thin an excess of air is liable to enter the furnace, causing a drop in the temperature and possibly below the temperature of ignition of the fuel used. However, with a heavier bed of fuel on the grate there may be just enough air enter to facilitate and sustain combustion. If the fuel bars be excessively heavy the furnace may, in a modified way, act as a gas producer, and when additional air is fed over the fuel, such gases are burned to better advantage. It takes a little practice to determine the proper depth of a certain type or kind of fuel upon the grates to obtain the best results.

Can Tender Clays Be Dried Successfully With Waste Heat?

To be sure they can. All that is necessary is to convert the dryer from a circulation dryer into a pressure dryer. As a general thing, tender clays have a very fine grain, and therefore a close body. In consequence of which, the outside will dry out faster than the moisture of the inner body can follow up. But if such clay can be kept surrounded with warm air that is partially (that is, not completely) saturated, then the green brick has an opportunity to warm uniformly all through the body and in that way the moisture will leave the green brick gradually and uniformly, but with a circula-

tion dryer the outside of the green brick dries out faster, and the more rapid the circulation the worse the results. I have seen pressure dryers dry off in tender clay very successfully; in fact, I can recall a plant where the stiff mud brick, if left on the dryer car for one hour in the sheds where there was any kind of fairly strong air movement, every brick on the car was cracked so badly that there was not a single good brick left on the car. This same clay brick, when put into the pressure dryer as soon as the car was filled, came out all O. K. from the pressure dryer. Of course, some experiments will have to be tried to determine the best temperature to use and also to ascertain the lowest velocity of movement in the dry kiln.

What Are the Advantages of Mortar Over Plaster Molds for Roofing Tile Process?

I am of the opinion that plaster molds are the better of the two. Metal molds, when too cold, will cause the clay tile to stick; when kept too hot, will cause the slab to blister. In some cases the metal forms are kept oiled; when such is the case, the tile sometimes whitewash excessively when there is no oil on the face. Again, the oily clay waste is a waste for sure, as the oily scrap will not bond well with the new clay in the pug mill. Again, the oil-pressed green tile will not take any slip. The worst of these unpleasant conditions are wiped out when wrong plaster molds, which are properly made and used. When you use good grade of plaster, the mold has plenty of draft and is kept moist or wet to the proper degree, then there will only be the minimum amounts of trouble present.

SAND, GROG, SAWDUST OR COAL DUST IN PLASTIC, TOUGH CLAY—HOW MUCH TO USE.

Some clays are so tenacious and sticky they can be worked only with difficulty in either the soft or stiff mud process, without the addition of some kind of shortening, in order to reduce the fatness, and thereby make it lean to work easier and also to overcome part of the excessive shrinkage, thereby preventing checking while drying or burning. A clay that burns to a close, dense body, causing trouble in molding, drying or burning, can be treated in various ways by the addition of sand, grog, coal or sawdust. How much? That depends.

In making any kind of a change in the clay, one must proceed slowly. Whether using sand, grog, sawdust or coal dust, make a few thousand brick by mixing 5, 10, 15, 20 or 25 per cent. of either material to the clay, and determine by the results after burning just how much your clay will stand. From 5 to 15 per cent. of sand or grog added to a plastic, sticky clay sometimes gives better results than if 20 or 25 per cent. is added. Some clays require that much, but a quantity above that often makes the brick too light and brittle or weak, and such brick do not ring any more than a loaf of bread. Therefore, in order to preserve the metallic ring, add just as much sand or grog as your clay requires to work easy in molding, dry safe, and burn to a solid, strong brick. There is no set rule how much to use; one clay needs only 5 per cent., while other clays need 25 per cent. for better results.

SAWDUST AND COAL DUST.

In using sawdust or coal dust we have a material that is combustible, and a smaller amount is needed, as it burns out at a dull red heat, leaving openings or pores in the clay, and if there are too many, of course the brick will be too porous and weak. Try a 5, 10 and a 15 per cent. mixture and note

the results. Now, for one who has no experience with the tricks these combustible materials play in the kiln, I would suggest to proceed thus:

When the watersmoke is off, heat up the kiln gradually to a dull red; then daub all the fire holes and let the kiln stand for about eight to twelve hours, at the end of which nearly all the sawdust or coal will be burned out. In an up-draft kiln the heat below will ascend to the top, burning out the stuff in the top courses; in a down-draft kiln the heat on top descends to the bottom, burning out the material in the bottom courses.

That this actually occurs one can observe by noting the escape of the combustible matter in form of vapor through the platting of the up-draft and then the stack of the down-draft kiln. Sawdust and coal dust help in some measure to burn the clay, and the cost of its use is well paid, provided not too much is used. Use just enough to overcome the difficulties in molding and drying. Do not try to burn your brick entirely with the fuel in the brick, but use most of the fuel in the furnaces. By all means do not overdo anything that will produce brittle, weak brick. Solid, hard, strong brick are better than soft, weak brick, even for backing up the wall, where most of the weight rests. Remember this. All on board for hard brick!

ANTON VOGT.

VENTILATING AND COOLING THE DETROIT INDUSTRIAL EXPOSITION BUILDING.

Profiting by the experience at the Cleveland Industrial Exposition last year, and to preclude any possible setback in attendance due to extreme heat in the building, the management of the Detroit Industrial Exposition arranged prior to the opening on June 20 for the installation of a complete ventilating, air-washing and cooling plant of immense proportions.

The exposition is being advertised as "the coolest place in Detroit," and the statement is true, only excepting cold storage plants.

The installation is of popular interest as well as of engineering importance. Two spaces originally designed for exhibit purposes were apportioned by the management for the cooling plant. These are about central in the north side of a temporary building. An opening of sufficient area in the side wall admits a fresh air supply, which is drawn through a Carrier air washer, made by the Carrier Air Conditioning Company of America (New York). This washes the air, eliminates all impurities, at the same time saturating the air with moisture, and giving a cooling effect of 15 degrees. The fine mistlike spray which does the washing is produced by means of nozzles, which are under 25 lbs. water pressure. A direct-connected Buffalo electric centrifugal pump is used to supply the spray water at the above pressure.

The air, after being washed and saturated, passes through the eliminator plates, which are so designed as to eliminate all free moisture. The eliminators are built of galvanized iron, and are made up of a series of plates evenly spaced and set in a vertical position across the discharge end of the spray chamber. The first three corrugations are kept flooded by the precipitation from the spray-laden air and from a set of nozzles located near the top of the eliminators. This arrangement provides for a secondary washing, which catches any solid material not already taken out by the first set of sprays.

The Carrier air washer is equipped with an automatic humidity control, which might be called a substitute for a man with brains, for it maintains any desired per cent. of humidity continuously. The above device is simple, scientifically and practically correct. During the past years it has fully demonstrated its superiority. The Carrier system of controlling humidity is accomplished by means of controlling the temperature of the spray water, therefore controlling the dew point

at the air washer, which determines the number of grains of moisture in the air. The system is acknowledged as indispensable in textile mills, especially where silk is fabricated.

A No. 12 full housed "Sirocco" fan supplied by the American Blower Company (Detroit) draws fresh air through the washer and eliminator, and delivers into the building nearly 3,000,000 cubic feet of purified and cooled air every hour. The "Sirocco" fan is belted to a 15 horse power 220 volt d. c. motor.

ANNUAL FROLIC OF THE CLEVELAND BUILDERS' EXCHANGE.

A VERY SUCCESSFUL summer outing was conducted by the Builders' Exchange of Cleveland on June 21 to 24, at Conneaut Lake, Pa. Members of the exchange and their families to the number of upwards of 200 enjoyed the outing, leaving Cleveland on a special train over the Lake Shore & Michigan Southern Railroad on Tuesday, June 21, arriving at the destination after a pleasant journey in time for luncheon. Headquarters for the outing were at the Hotel Conneaut, the entire capacity of the hotel being assigned to members of the party. From the time of arrival until the departure a lively program of entertainment was followed. On Tuesday afternoon the members took a delightful ride around the lake on a chartered steamer, and in the evening music and other entertainment was provided. On Wednesday the annual ball game between the material dealers and the contractors was held, furnishing no end of amusement to the crowd, and resulting in a victory for the material dealers. In the evening a dancing party was held in the large dancing pavilion of the resort, all members and their ladies participating in this feature. On Thursday trips to surrounding points of interest, including Saegertown and Cambridge Springs, were taken, and in the evening a fireworks display and Venetian night proved a prime attraction, not only for the builders, but for local people for miles around.

The party reached Cleveland on Friday evening in time for dinner, all hands declaring that the outing was in every respect a most satisfactory affair. The weather conditions were ideal, the accommodations were ample and of a high class, and the general impression was that the trip of 1910 was certainly one of the best taken by the exchange. The affair was in charge of the regular entertainment committee, comprising Messrs. A. C. Klumph, chairman; E. T. Holmes, F. J. Dresser, T. W. McAbee and Lawrence A. Slatmyer. A large measure of the success of the outing was due to the work of E. A. Roberts, secretary of the exchange. "Teddy" was on the job every minute to see that nothing went wrong and that everybody enjoyed himself.

PROGRESS AND PROSPERITY IN THE SOUTH.

J. C. Steele & Sons, Statesville, N. C., manufacturers of the "New South" brick machinery, report a very busy season. Among recent shipments of Steele machinery are the following: H. Weil & Bro., Goldsboro, N. C., a machine of 40,000 daily capacity, replacing a machine of another make; Abernathy, Lyerly & Co., Bridgewater, N. C., a machine of 25,000 daily capacity, replacing a machine of another make that was only used a short time; J. A. Griffin, Ayden, N. C., a machine of 25,000 daily capacity; R. H. Clegg, Durham, N. C., a machine of 15,000 daily capacity; M. L. Teer, Durham, N. C., a machine of 25,000 daily capacity; R. B. Fitzgerald & Son, Durham, N. C., one machine of 25,000 daily capacity; Milford Brick Company, Milford, Del., one machine of 25,000 daily capacity; Kenilworth Brick Company, Asheville, N. C., a machine of 15,000 daily capacity, being the second one bought by the same company within two years' time; Joseph G. Holland, Hollands, Va., one machine of 25,000 daily capacity; J. E. Carleton, Pike's Peak, Ga., one machine of 30,000 daily capacity; Dunning Brick Company, Aulander, N. C., one machine

of 15,000 daily capacity; this is the third machine of this manufacture bought by this company; Ward Brothers, Galax, Va., one machine of 25,000 daily capacity; Tar Heel Brick Company, Wade, N. C., one machine of 25,000 daily capacity; Whitaker & Russell, Andrews, N. C., one machine of 15,000 capacity; Georgetown Brick Company, Georgetown, S. C., a machine of 25,000 daily capacity, replacing a machine of another make which was not satisfactory; Transou & Hayes, Booneville, N. C., one machine of 15,000 capacity. In addition to these shipments they have orders on hand for one machine of 25,000 capacity to be shipped to the Marion Extract Company, Marion, Va., also a complete outfit of 40,000 capacity to go to the Jackson Lumber Company, Macon, Ga. Also an outfit of 15,000 capacity to be shipped to the Southwestern Hospital, Marion, Va.

BENEFITS OF PERSISTENT ADVERTISING.

THE NEW HAND at the advertising game generally thinks that advertising is only good sense, and he is right; but, nevertheless, advertising is a subject that cannot be approached by the amateur with any certainty that his native good sense is going to be a sufficient guide, simply because, as in any new subject, there come up more considerations than the beginner is apt to think of.

The only advice that can be universally given to a manufacturer who contemplates advertising is to remember that advertising is a profession and an art, and the expert should be consulted exactly as a lawyer would be.

Simple as this advice is, it is continually disregarded. To the outsider law seems a difficult and complex thing, whereas advertising looks easy. In consequence, millions of dollars are wasted in advertising every year by men who cannot realize that there is more to the matter than they are likely to see at the first glance.

Most advertisers are inclined to over-emphasize the relative importance of the copy. Getting a correct illustration or a good argument is only part of the work. It is equally important that the advertisement be placed in the right papers, and that no more than necessary be paid for it. The amateur advertiser is much too likely to let his selection of mediums be governed by the representations of the solicitors who happen to visit him. Some of the papers that would do him the most good are perhaps the ones which are least aggressive in soliciting advertising, while the man who comes every week and talks the loudest may represent a paper that simply needs the money.

Another factor in successful advertising is persistence; and still another is bigness. How to combine these two on a small appropriation seems often a difficult matter. A small advertiser who has money enough to pay for three pages total space in a year, for instance, in a weekly paper, can hardly afford to run full page copy, unless his activity is properly confined to a short selling season. On the other hand, it is important that his space does not be subdivided so small as to make him appear to be one of the little fellows. The reader who notices his advertisement does not know whether the same advertisement appeared the previous issue or not, but he does know that an eighth of a page is a pretty small proposition, and indicates a small advertiser, and probably a weak firm. Even if he knows all about the firm, there is a sub-conscious effect of noticing that it classes itself in the advertising columns with the small fry.

Accordingly, the advertiser should not divide his three pages a year into fifty-two little bits for the sake of running every issue, but should rather run quarter pages once a month, or half pages during six months, when his market is most favorable. Such an arrangement secures the value of persistence. To have spent the money all at once in some big splurge, and then to stop for a year, is to lose the cumulative effect of repetition. The second half page insertion is worth

more than the first, because it appeals to the reader as something that is vaguely familiar; and the third insertion is more valuable than the second, because the reader is still more conscious of familiarity with it.

Do not think that to advertise once a year in a convention special constitutes an advertising campaign. Keeping everlastingly at it brings success in advertising, and is the only method that will bring success.

FIRST PAVEMENT IN WYOMING TO BE OF BRICK.

Sheridan will be the first town in Wyoming to have artificial street paving, contracts having been let recently for vitrified brick and block paving to cost about \$75,000. Cheyenne, a much larger city, is favored with a natural decomposed gravel surface, and artificial paving will not be needed there for some time.

BURNING QUESTIONS.

Many clay manufacturers are up against burning questions in more senses than one, but those who want expert assistance in burning brick, tile or pottery can get it by getting in touch with Anton Vogt, of the Anton Vogt Kiln Construction Company, Fort Smith, Ark., if we may judge from the experience of the Flint River Brick Company, of Albany, Ga. Under date of June 9, Mr. C. C. Barber, manager of the latter company, writes as follows:

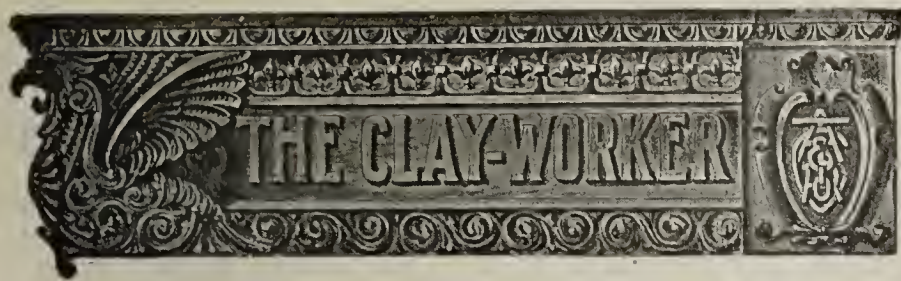
"Mr. Anton Vogt, whom we employed as an expert on brick yard troubles, as well as kiln building, has done all he claimed and a great deal more. He has made some improvements on our kilns that we know will pay us many times the cost of his services and the expense of his trip to our plant. A visit from Mr. Vogt to any brick yard will be of benefit to the owner, and add to their dividends. A more conscientious man the writer has never known."

NEW SHOP FOR GREEN FUEL ECONOMIZER COMPANY.

The Berlin Construction Company has received the contract for rebuilding the fan shop of the Green Fuel Economizer Company at Matteawan, N. Y., which was almost totally destroyed by fire some weeks ago. It is expected to have the new building erected and complete, ready for occupancy, about the middle of August. The new shop will have about 25 per cent. more floor space than the old shop, including a test room fully equipped with chambers, gauges, etc., suitable for making exhaustive tests on the capacity, pressure and efficiency of the improved fans built by this concern for heating and ventilating, mechanical draft and other services. The new building will be of steel construction throughout, and will be heated by the hot blast system, with frequent outlets near the floor to secure uniform distribution of the heat. This system has been applied by the Green Fuel Economizer Company with great success in several buildings that were particularly difficult to heat, such, for instance, as the new foundry of the Waterbury Castings Company, where the wall surface is almost entirely of glass.

THE C. W. RAYMOND COMPANY BUILDING A NEW FACTORY.

Having outgrown the old factory, the C. W. Raymond Company, Dayton, Ohio, is erecting a new factory in that city, which they intend to make a model of convenience. They are mailing cards showing the progress of the work of building, from which it is plain to see that the factory will be immense in size. It is a combination of brick and concrete construction, and when completed will be one of the largest and best equipped plants in the world for the manufacture of clay-working machinery. Later on, when the work of building has progressed far enough, we hope to present our readers with a view of the building.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	- - - - -	\$ 2.00
One copy, one year (if not paid in advance)	- - - - -	2.50
Six copies, " " " " " "	- - - - -	10.00
Ten copies, " " " " " "	- - - - -	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIV.

JULY, 1910.

No. 1.

CURRENT COMMENT.

Generally we had what has been termed a safe and sane Fourth. But does it mean more sanity or simply less of the spirit of patriotism?

* * *

Wisdom is one thing we have to get on the installment plan, and, like other installment purchases, we frequently have to pay a pretty dear price.

* * *

The simple remedy offered for keeping down the cost of living is not to live so high. It is good advice that all of us would like the other fellow to follow.

* * *

No matter whether one is a friend to Colonel Roosevelt or not, practically all agree that politics and other public questions will not be dull in the East during dog days.

* * *

The solution of the freight rate problem is plainly to be had by building up our inland waterway navigation. Let us keep this fact before us, and keep pushing the river and canal work along.

* * *

There is a story of a truck farmer down in Florida who, by putting in a sub-irrigation system with tiling, and doing intensive farming, has made land around there worth a thousand dollars an acre. Tilemakers take notice.

* * *

The government forest service is complaining that woodpeckers are doing serious damage to telegraph poles. Well, if they will put those wires under ground in clay conduits, there will be no more worry on that score.

* * *

And now some of the cement-brick men admit that they can't compete with common brick, but claim they can cut under the price of fancy face brick and make a profit. Well,

we fancy there is some lack of inducement for the buyer when it comes to that kind of a showdown.

* * *

It is not often that a man's self respect keeps him from enjoying life; it is generally a biliousness that is responsible for his sour disposition.

* * *

Here is a question of the day that won't be answered: Why is it that the average man roots about five times as hard for his home ball team as he does for his own business?

* * *

It doesn't matter whether it is fanning at the ball game or at some other innocent and healthy sport, a little of it now and then always does good by relieving the tension and worry over business matters.

* * *

The older a man gets the more he becomes impressed with the comparatively small amount of knowledge he possesses, but there is some consolation that he knows what he does know better than he did before.

* * *

We are still waiting and longing for some man to invent a machine or process by which brick can be put into a wall cheaper than the bricklayers permit it to be done at present. There is too great a percentage of the total cost of brick work chargeable to the laying.

* * *

The automobile drivers are beginning to more fully appreciate the advantages of brick paved streets. We could have told them about it sooner, and they might have helped in pushing the work of brick paving along some time in the past, but we are glad to have them on the right side at last, and willing to let by-gones be by-gones if every automobile man will make it his business to root for brick paved streets.

IT HAPPENED IN LOUISVILLE.

The news reports tell of a little excitement caused in Louisville during the month by a steer straying from a herd that was being driven up Main street and invading the lobby of the Louisville Hotel. Louisville is rather proud of the fact that it is the only place on earth where a man may be able to get run over by a calf or a pig and listen to an oration by Henry Watterson all within half an hour's time. But in the case of the steer there is another explanation, and we don't blame the steer. Main street in Louisville is paved with granite blocks, and the lobby of the Louisville Hotel is more inviting. The answer is, let them pave Main street with brick, or else drive the cattle up some other brick paved street.

TILING FOR SUB-IRRIGATION.

There is a story about intensive farming as it is done in celery growing down in Florida which appeared in the Saturday Evening Post, July 9. It is quite an interesting story of how a man who came from up in New Jersey settled down in Florida, started to experimenting with celery, and managed to obtain some wonderful results by sub-irrigation. He had an artesian well and made wooden troughs, turning them upside down, and using them to convey the water underneath the soil, and let it percolate up through it.

His results at this work soon attracted the attention of others, and some of the others got to thinking about how would be the best way to do this underground irrigation, and the result of this thinking was a turning to porous field drain tiles of the common sort used by farmers for draining wet land. In short, it was a reversing of the use of drain tiles. They were put in under the soil to keep moist the roots of the growing celery. The tiles were all 20 feet apart, and at the end of each section or line was located a control box, a device

for closing the end of the conduit and forcing water out into the soil more freely than capillary action would draw it. The tiles were laid loosely end to end, and the open joint covered with sawdust or palmetto fiber to prevent the sand of the soil from filling the ends of the pipe, and at the same time give the water an easy exit.

It is said that the plan worked excellently, and it has been followed by others, and apparently there is room for wonderful development in the use of tile for sub-irrigation wherever this kind of work is advantageous. Just how widespread this practice of sub-irrigation in this way may become depends, of course, on the interest taken and the amount of development in the growing of different crops. What is known as intensive farming is getting to be a great game now, and it is this kind of farming that calls for everything possible to force the growth of the products, and involves irrigation and sub-irrigation, and the possibilities are that the sub-irrigation ideas will be the main thing in the future. It is more practical and contains better principles of supplying moisture than surface irrigation.

SOME INTERESTING FIGURES ON BUILDING.

Some interesting figures on building are being furnished by the U. S. Geological Survey for the calendar year of 1909 in a report compiled by Jefferson Middleton, which can be obtained by any one interested by applying to the Director of the U. S. Geological Survey at Washington.

According to this report the building operations in the 51 cities last year involved permits to the number of 213,498, and the total value of buildings erected under these permits is given as \$771,937,564. This makes the average cost per building \$3,616.

Now, before going any further into the details of this report, there is one feature of it that should be of particular interest to brick people, and that is, in the classification of building according to the materials used and an estimate of the average cost on this basis. To get at these figures the statistics were secured from 128 cities, covering a total of 264,536 permits at a cost of \$903,385,954. New building constituted over 90 per cent. of this. Of these new buildings 73.24 per cent. were of fire-resisting material, and 26.76 per cent. of wooden buildings. The average cost of the wooden buildings was \$2,269, of brick buildings \$9,522, of stone buildings \$11,679, of concrete buildings \$17,099, and of a list of miscellaneous fire-resisting buildings \$63,890.

Of course, it is not practical to get at exactly the relative cost of erecting a building of different kinds of material from these figures, because of the difference in size of the various buildings. However, it should be encouraging to brick manufacturers, and a point worth keeping in mind and talking about. You observe that next to wood the lowest cost of building could be obtained in those erected with brick. That is, the lowest general average, while concrete comes highest on the general list. This, of course, is excluding the special fire-resisting buildings which evidently made up the miscellaneous list of very expensive business structures. It would not be a bad idea for every brick man to make a memorandum of those figures and keep them for reference.

As was naturally to be expected, New York led in the relative number of brick buildings and fire-resisting buildings generally, with Chicago second, Brooklyn third, Philadelphia fourth and St. Louis fifth. The average cost of what is termed fire-resisting buildings was \$3,151 in Philadelphia and \$65,384 in New York, which shows quite a wide range in this class of building, and good evidence that people are adding fire-resisting qualities even to the modest and inexpensive structures to quite an extent.

Last year was the first time that building operations have reached up to the high level of 1906 since the panic came, and not only does the report of last year show building operations

in a healthy condition, but the reports from the trade so far this year indicate that 1910 will not only exceed 1909, but will beat the 1906 record and establish an entirely new one. Where building operations were heaviest last year is really no indication of where they may be heaviest this year, but it is of interest and value to all those manufacturing and handling building material to keep posted on these figures from year to year, and it is worth while to get a copy of this report, make a study of it, and file it away for future reference, for there are many things of interest and value to brick manufacturers therein.

Reading, Pa., was the only city that reported no wooden buildings erected during the year. Stick a pin in this and watch for the next city.

ACCIDENT COMPENSATION FOR WORKMEN.

The commission of the Minnesota legislature, appointed to investigate the question of accident compensation, recently returned from a trip to England, France, Switzerland, Germany, Austria and other continental countries. The judgment of the members of the commission upon their return was in favor of the German plan, with such modifications as the American system of procedure would make desirable. The German system makes the matter of compensation to injured workmen to be shared by the employer, the employe and the state itself, each having an active interest in the matter. They found that the injured workmen and their families received 90 per cent. of the amount paid out for accidents. In America the best statistics that can be secured tend to show that the workmen receive less than one-third of the amounts paid, the remainder going to bonding companies, lawyers, court costs, and other things incidental to the system of threshing out each case individually in court, if a settlement cannot be reached outside. The commission will work upon a report, involving recommendations for a law along these lines, between now and the meeting of the Minnesota legislature, which is in January next. It is believed that the recommendations, if enacted into law, will make Minnesota take an advanced position in this important matter, which will doubtless be speedily copied by other States as its advantage becomes apparent to all concerned. The workmen will benefit, because they will receive assurance of compensation for accident without danger that a fellow servant or contributory negligence or other cause will cut them off, as is too often the case now. The employer will benefit, in that he will pay no more, in all probability, than he does now, while his workmen will be better protected. The state will gain in cutting out a large quantity of court cases, with the exhaustive costs which accompany them, and in the saving of the economic waste which accompanies the present system. The persons who will suffer from the change are the lawyers, including the so-called ambulance chasers, and the bonding companies. The former will find their occupation gone, so far as such cases are concerned. The bonding companies will have a lesser business in insuring against accidents.

TRADE LITERATURE.

CHAMBERS BRICK MACHINERY is fully illustrated and described in Catalogue No. 21, issued by Chambers Brothers Company, Philadelphia. The catalogue contains much instructive matter pertaining to the manufacture of brick by the stiff clay process. This bit of timely advice is given as a preface:

"Do not give the purchase price, or first cost, of a piece of brickmaking machinery too much prominence in your consideration. The question of greater output, uninterrupted work, greater durability, continuous brickmaking service, are of far more importance. The price is in our machine, and no one

profits so much from the relative higher cost of a well-made brick machine as does the brick manufacturer who uses it."

The catalogue itself, which is a book of nearly two hundred pages, indicates in its matter and makeup the care and attention to detail which spells success. The table of contents, which begins with "Ash Scoops" and ends with "Works Plans," makes the catalogue valuable as a book of ready reference, and as such it ought to be in the hands of every stiff clay brick manufacturer. A copy can be had for the asking. In writing for it, mention THE CLAY-WORKER.

FATE'S MAGAZINE is the title of a neat little publication issued by the J. D. Fate Company, Plymouth, Ohio. The publishers' announcement states that it is a monthly magazine devoted to industrial and commercial sociology and humor. It is in fact a magazine in miniature, and contains much wise shop talk tabloid form, as well as specific information in regard to the Fate line of clayworking machinery, which it states is used in the best and most profitable plants the world over where economy and endurance is a consideration. Readers of THE CLAY-WORKER are requested to ask the J. D. Fate Company for a copy.

GET A TRANSFER.

If you are on the gloomy line,
Get a Transfer.
If you are inclined to fret and pine,
Get a Transfer.
Get off the track of doubt and gloom,
Get on the sunshine train, there's room.
Get a Transfer.

If you are on the worry train,
Get a Transfer.
You must not stay there and complain,
Get a Transfer.
The cheerful cars are passing through
And there is lots of room for you.
Get a Transfer.

If you are on the growling track,
Get a Transfer.
Just take the happy special back,
Get a Transfer.
Jump on the train and pull the rope
That lands you at the station Hope.
Get a Transfer.

—Author Unknown.

A CREED.

To be earnest, to be strong;
To make light the way with song;
Slow to anger, quick to praise;
Walking steadfast through the days,
Firm of purpose, sure of soul,
Pressing onward to the goal;
Upright, even, undismayed,
Sure, serene and unafraid.

To be patient, to be kind;
To be purposeful, and find
Sweetness all along the way;
Loath to judge, but firm to say
Truth with unrelenting tongue;
By no cavil veered or swung
From the right; and to endure
Hopeful, helpful, clean and pure.

To be gentle, to forgive;
True to life and glad to live;
To be watchful and to be
Rich with boundless charity;
To be humble in success,
Strong of heart in bitterness;
Tender, gracious, thoughtful, good
In our man-and-womanhood.

To be smiling, to be glad
For the yesterdays we've had;
To be grateful all the way
For the beauties of to-day;
To be hopeful and to see
In the days that are to be
Bigger, better, broader things,
Robes of purple, crowns of kings!

—H. D. Bismarck.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 89.]

FOR SALE, WANTED, ETC.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brick-making. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

T. A. RANDALL & CO.,
Indianapolis, Ind.

For Sale, Wanted, Etc., Ads Continued on
pages 77-79.

American Steam Pipe Rack Dryer

(Patented)

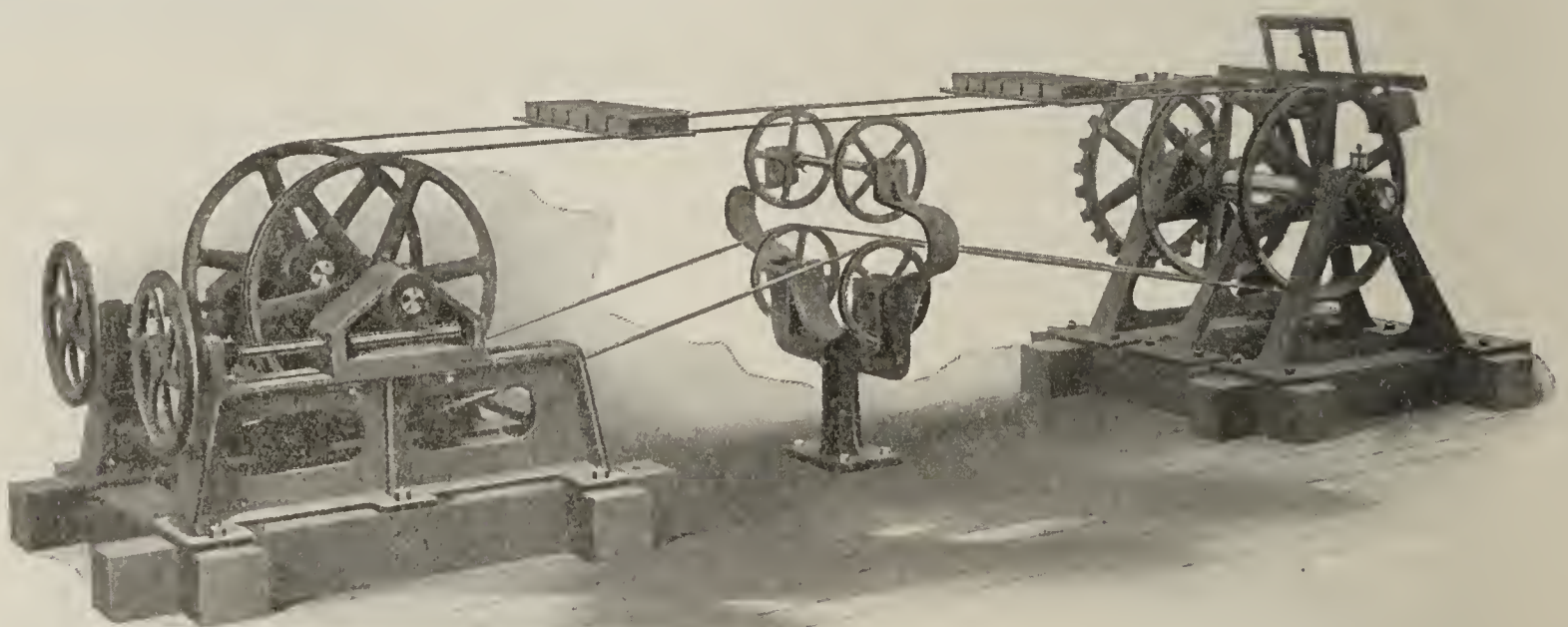
WE have just received letters patent on a number of new features in our improved Steam Pipe Rack Dryer which place it far in advance of all dryers of this class. With these additional improvements the problem of economical and thorough drying has been simplified. The American Steam Pipe Rack Dryer is making good wherever used and will be of interest to you. It costs you nothing to investigate this matter and it may be costing you a great deal not to investigate it. It is an economy in time, fuel, space and maintenance. The improved Cable conveying system which we install in connection with our Steam Pipe Rack Dryer is a feature which means much in cheaper handling of the brick from the brick-making machine to the dryer and from the dryer to the kiln. The pallets when emptied are returned by the conveyor to the brick machine.

This system cuts out all trucking from the machine to the dry racks and all wheeling from the racks to the kilns. The brick being handled on pallets at all times which insures a much better quality of brick because handling each brick by hand necessarily caused more or less spoilage and marred the brick. You are invited to investigate the American Steam Pipe Rack Dryer. It's worth your time.



Interior View of Steam Pipe Rack Dryer

We build every machine and appliance necessary for making every class of Clay Products by all processes. We are the largest manufacturers of Clayworking Machinery in the world and can therefore maintain an organization which includes the very best experts in every line of Clay Manufacturing. This knowledge is not only back of our machinery and equipment but is at your disposal for the solution of any of your clay problems.



Units of Cable Conveyor

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

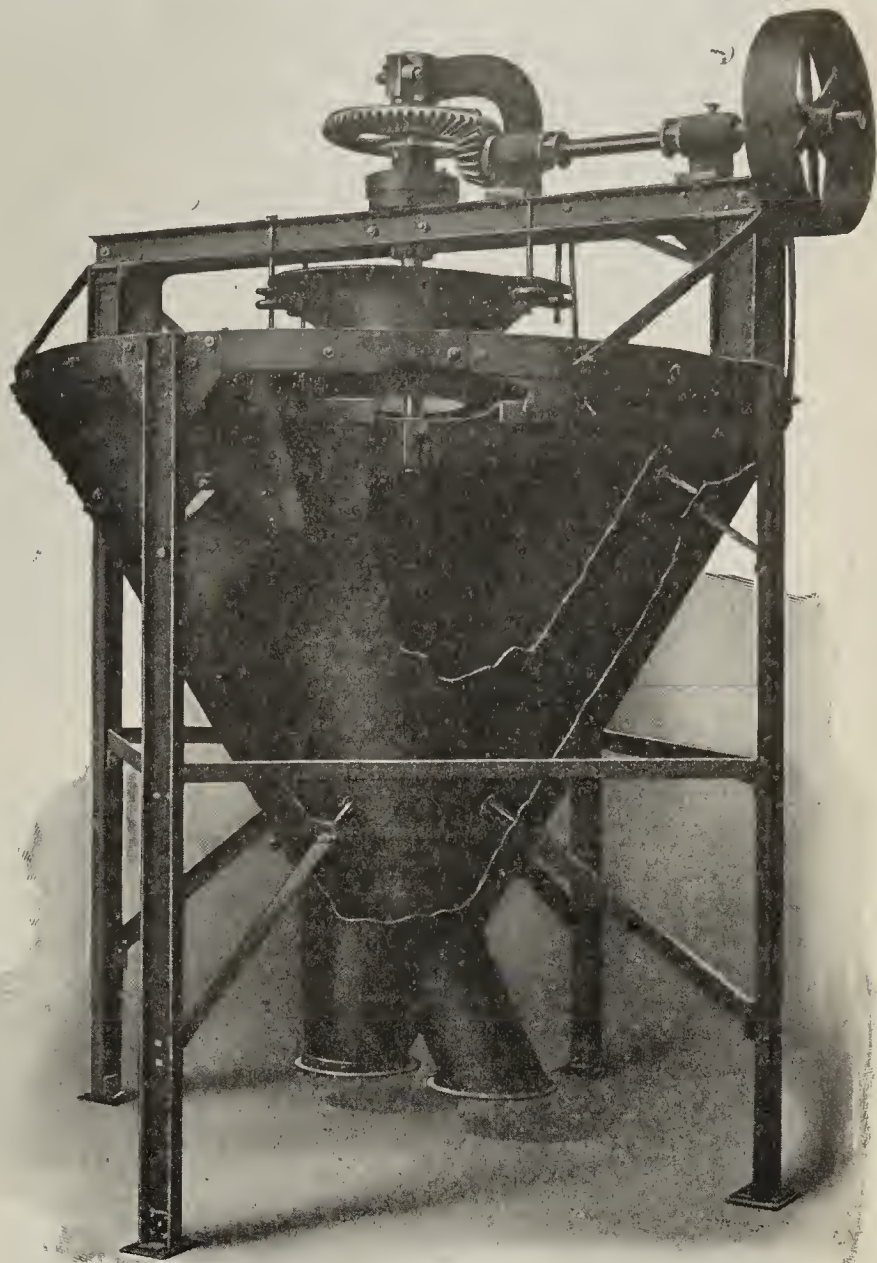


The Users Talk About It

We are going to tell you all about this screen in five words. It is

**“Built Right
and
Runs Right”**

If you are interested in screens and want a description of this centrifugal Screen Success, we will mail you a circular about it which tells the whole story, but in this page we are going to allow the men who are using this screen to tell you how they looked for repair bills, how they searched for flaws, how they expected troubles.



They have been “through the mill” just listen to them talk about it.

“Our Centrifugal Screen screens the clay very fast. The men who operate the Screen are pleased with results.”—Columbus Plate Glass Co., Blairsville, Pa

“The Centrifugal Screen has certainly surpassed our expectations. We have run the Screen 60 days without a cent’s worth of repairs. We believe it will run indefinitely without repairs.”—Michigan Vitrified Brick Co., Bay City, Mich.

“We have two of your Centrifugal Screens. One has more than paid for itself in labor saved. It is handling material for 100,000 brick per day. We shall use these Screens exclusively in all our plants in the future.”—Coffeyville Vitrified Brick Co., Coffeyville, Kan.

The American Clay Machinery Co.,

We build every machine and appliance required for manufacturing every kind of Clay Products by any process. Fifty years of experience and attention to the need of the Clay-workers has built up a trade and an organization which is a credit to the Clayworking Industry. You are invited to use this organization and experience.

BUCYRUS, OHIO.



Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



BUILDING OPERATIONS in Cleveland for the first six months of this year have about equalled in volume the work done during 1909, according to a report made by the city building inspector. Nearly \$7,000,000 in building permits were taken out, which is about the same as last year. It represents an expenditure of over \$10,000,000, however, for permits are seldom taken out for much more than half of their real value. The fact that a substantial increase was not shown was due to the fact that building operations were entirely suspended during January and February, whereas in Cleveland they usually continue with short interruptions. The wintry weather, however, prevented any work at all, and consequently no new projects were launched until along in March. A very wet and disagreeable April aided in holding up building operations to some extent. It is believed, however, that the year's total will show an increase over all former records. An analysis of the permits shows a big increase in the use of brick, tile and fireproofing materials, everything outside of residences and small apartments being almost entirely of a fireproof character. A surprising increase in brick is also shown in dwellings as compared to former years.

Plans for a number of large buildings now in the building inspector's hands for scrutiny, but for which permits have not been issued, indicate that the summer and fall operations will be quite active. The brick dealers and manufacturers in this territory are all pleased with the way business has been rolling in, and most of them have enough orders ahead to keep busy for the next month or two. The paving brick plants for the most part have their output for the year sold out, with prospects already appearing for business next year.

A huge warehouse, which is expected to cost nearly \$2,000,000, is planned for the General Cartage and Storage Company, facing on Superior viaduct. It will cover hundreds of square feet of ground, and will be six or eight stories in height. It is planned to build it over one entire street, while from another side arrangements are being made for eight switch tracks from an adjoining railway. Big elevators which will hoist an entire van load, with team, from the ground floor to the roof will be installed. The exterior walls will be of brick, with reinforced concrete for the interior. A. H. Greeley is manager of the concern which is making preparations for the erection of the big structure.

Architect J. Milton Dyer has awarded to Samuel Austin & Son the contract for the erection of a big warehouse for the Strong, Carlisle & Hammond Company, on Perkins avenue, near East Thirty-eighth street. It will be a fireproof structure of brick, steel and concrete. It is aimed to have it ready for occupancy some time during the coming fall.

A large brick school house is to be built at Fairport, Ohio, a short distance from Cleveland, from plans prepared by Architect Franz C. Warner, of this city. It will contain twelve rooms, and will be fireproof throughout, replacing a structure destroyed by flames several months ago. In Cleveland contracts for four grammar school buildings, costing about \$100,000 each, have been let during the past two months, while in suburbs about Cleveland many new school buildings are being built.

The Fath Construction Company has been awarded the contract for a new \$45,000 branch public library on Lorain avenue, near West Eighty-second street. Plans for the structure were prepared by Knox & Elliott, of this city, and call for a brick building with pretty terra cotta trimmings. Money for the building is being furnished by Andrew Carnegie. Three other branches are to be built this summer in different parts of the city from cash from the same source. Plans for them are now in preparation.

The Standard Welding Company has started work on a

new \$75,000 factory of brick and steel at its plant on the West Side. It will double the company's capacity and provide one of the most substantial factories in the city. The huge brick and steel factory now in course of erection for the White Sewing Machine Company is nearly finished, and will be occupied next month. It is of the saw-tooth variety, covering six acres of ground. It is of red brick and steel throughout.

Work is now in full swing on foundations for the splendid new brick temple for the Anshe Chesed congregation on Euclid avenue and East Eighty-second street. As originally planned it was to be of stone, but after looking over the plans it was decided to substitute tapestry brick in warm red and brown shades, as a better effect could be secured, according to the architects, Lehman & Schmitt. It will be completed early next year.

The same architects are receiving bids for a four-story tile front building for W. G. Callow on Euclid avenue, opposite East Nineteenth street. It will have a frontage on the avenue of 162 feet and will be 192 feet deep. Scores of buildings in Cleveland are now being built with the white glazed terra cotta or enameled tile. Those which have been up longest seem to stand the wear so well that many more will follow.

The Reaugh Construction Company has been awarded the contract for the completion of the Plain Dealer's magnificent new building at Superior avenue and East Sixth street. It is of granite and terra cotta, and fireproof throughout. The first story of granite matches so well with the upper stories of terra cotta that only an expert can tell the difference in the materials. The work is to be completed early next spring.

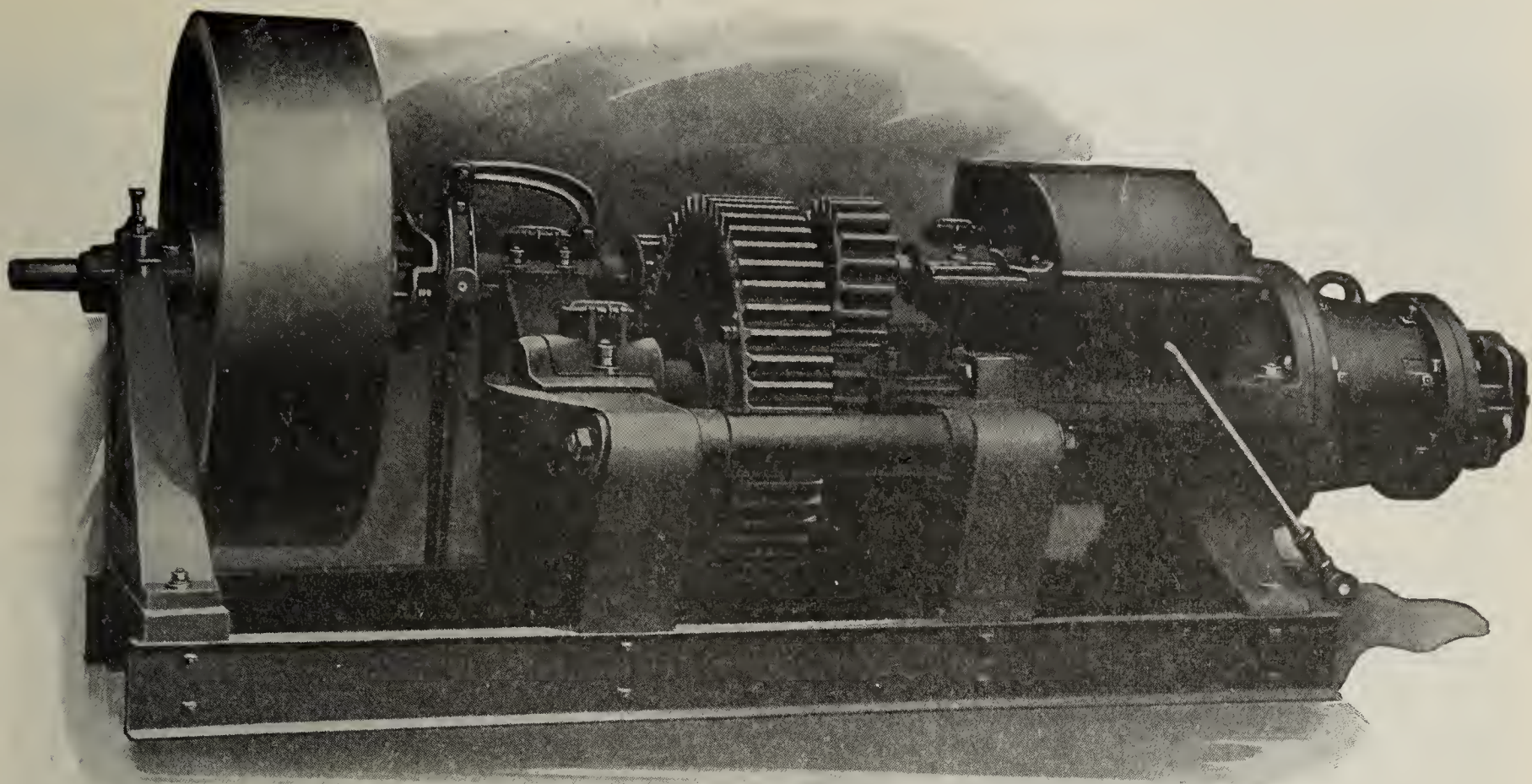
F. C. Werk, engineer, in the New England building, has been awarded a contract for the erection of a new fireproof power plant for the N. Y., P. & O. Dock Company at Randall, near Cleveland. It will be 115 by 42 feet in size, and will have a brick smokestack 150 feet high. The plant is to be completed the latter part of September.

After fasting thirty-five days, P. D. Hardy, president of the Canton Pressed Brick Company, finally decided that he would take something to eat. He fasted so he might drive several trivial troubles out from his system. He lost just forty pounds in weight, but at its conclusion declared that he felt as well as he ever had in his life. In addition he cured those ills which physicians had always failed to effect.

During the past month in Cleveland delegates to the national convention of tile layers, in convention at the Hotel Euclid, this city, decided to take steps to establish a trade school for tile layers in connection with the trade school operated by the tile manufacturers. The union offers to meet half the expenses, and wishes to operate hand in hand with the manufacturers, so that students might become expert in the work. The union would send men who had served the majority of their apprenticeship to the school to conclude their training.

Another building supply company in Cleveland has been absorbed by the Cleveland Builders' Supply Company, which some months ago took over the Masons' Supply Company and the retail department of the Kelley Island Lime and Transport Company. The latest to succumb was the Contractors' Supply Company, which was launched about a year ago by Robert C. Mitchell and A. T. Hatch. Mitchell and Hatch are taken over by the big company, and will be associated with Bert Graham in the management of the brick department of the Cleveland Builders' Supply Company.

A city council committee is now busy probing the city building inspector's office, on complaint of a number of contractors. It is claimed that buildings have been put up by incompetent contractors, in which poor materials were used and incompetent workmen employed. Building Inspector V. G. Marani defends himself by saying that he has not enough men to properly enforce the provisions of the Cleveland code, which is regarded as a model of its kind. The investigation will probably be in progress for several weeks. BUCKEYE.

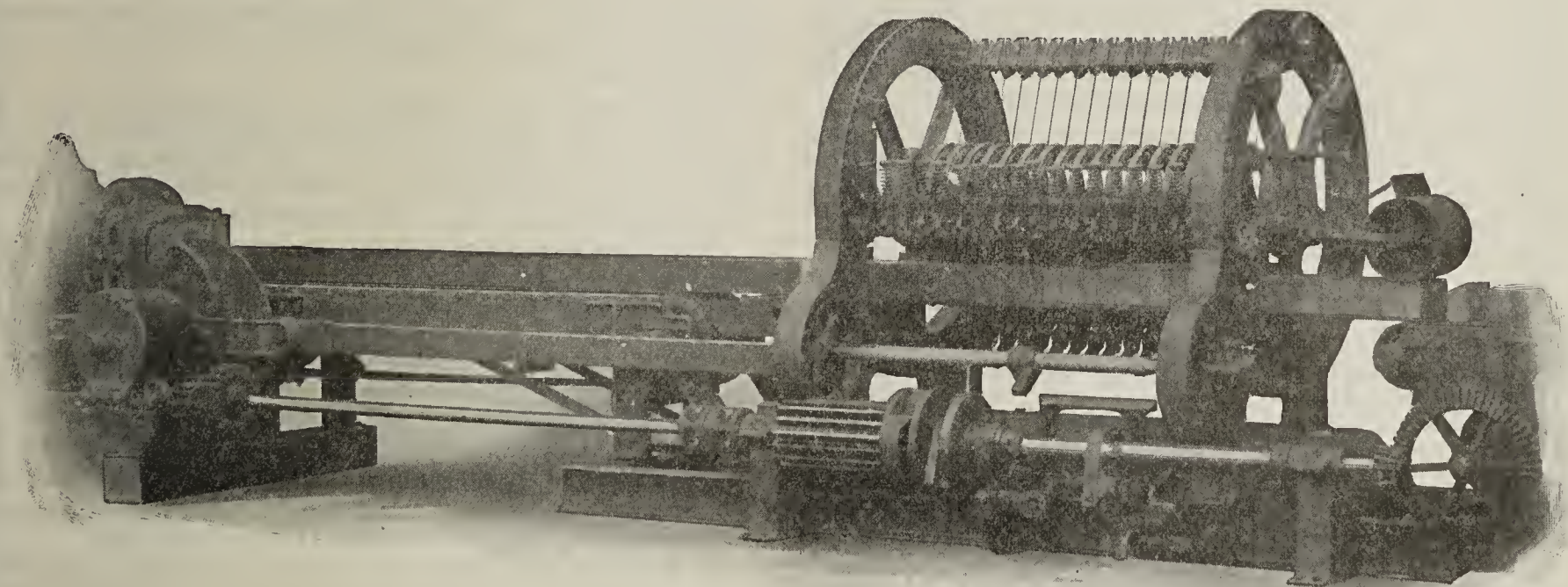


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 112-115.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



OUTLOOK in San Francisco and in the surrounding cities and towns continues good from the brick man's point of view. The building statistics for June show that the general run of building is keeping up well in the city, particularly in the fire limits. Most of the buildings are of a smaller type than was the vogue in the down-town section of the city a year or two ago, but this is about offset by the greater number of them. In some of the cheaper buildings a good deal of concrete is being used, though the reinforced concrete structures are usually provided with brick and terra cotta fronts, or at least with brick facings. A few first-class large buildings are on the list for construction this summer, not only in San Francisco, but in Oakland and Berkeley as well.

Prices for brick and other clay products continue as heretofore, and the feeling is quite general that no advance is likely, in common brick at least, until the present accumulations are pretty well used up. The few plants that are still making common brick seem able to sell at present prices, and appear disposed to do so rather than shut down or hold for better figures.

The labor situation, which appears satisfactory in San Francisco, is less encouraging at other points on the coast. In Los Angeles, Seattle and Portland strikes in the iron trades are affecting the building situation adversely, and in Portland a teamsters' strike has made the situation still worse. In some of the smaller cities of the coast, notably at Stockton, Cal., the building trades are directly affected, and general sympathetic strikes of all classes of builders are feared.

The United Materials Company, which acts as selling agent for some of the leading clayworking plants in the San Francisco Bay section, reports that another kiln is being added to the plant of the Los Angeles Pressed Brick Company at Richmond, Cal. The United Materials Company has secured some nice roofing tile jobs for government barracks in this city. This company is to furnish both common and face brick for the \$25,000 Y. M. C. A. building at Berkeley, Cal. The delivery of "ruffled brick" from the plant of the Los Angeles Pressed Brick Company for the Children's Hospital in this city will begin this month. The delivery of tile for the municipal work in San Francisco has been completed.

Brick manufacturers and contractors are beginning to think about the proposed City and County Hospital, which will be up for figuring within a week or two. This building will require about four and a half million common and two and a half million face brick.

Charles H. Sooy, who is in charge of the city business of the Vallejo Brick and Tile Company, has placed considerable quantities of the company's output for the new sewers now being laid in this city. The company's plant is running and is doing a good business.

M. A. Murphy, manager of the Carnegie Brick and Pottery Company, is not particularly enthusiastic over the situation in this city. He sees no large building contracts in prospect, and, though there is a lot of sewer work doing and to be done, the manner of inspection inaugurated is not to his liking, and he has withdrawn altogether from figuring on city sewer work. In fact, the demand for sewer pipe from outside points is so good and so much more satisfactory than city work that his company's output is practically all used on the outside. The demand for fire brick is limited, but is steady, and is fully up to the normal.

The construction of a number of pumping stations for the proposed municipal auxiliary salt water fire protection system should be started soon. All the pipe is on hand and has been on hand for some time, but the construction work is being delayed, supposedly for political reasons. It is believed, however, that actual work will start before long. The contract for one station has already been let.

The demand for the fire brick and fire clay of the Ione Fire Brick Company is on the increase, this being particu-

larly true of the demand for fire clay. The steamship companies, oil companies and other large users are sending in repeat orders for this line.

The Realty Syndicate, of Oakland, Cal., is planning to add eight stories to its Class A building on Broadway, at a cost of upwards of half a million dollars. The exterior walls of the additional stories will be of Roman gray pressed brick, conforming in style to the brick used in the lower stories.

The Oakland Paving Brick Company, of Oakland, Cal., recently organized, has begun preliminary work on the installation of its proposed plant at Decoto, Cal. The directors of the company include Mr. Burpee, cashier of the First National Bank of Oakland; E. A. Heron, president of the Oakland Traction Company, H. W. Taylor, E. L. Dow and R. Cook.

The Livermore Fire Brick Company has been incorporated at Livermore, Cal., by C. G. Holloway and J. J. Butler, of Oakland, Cal., and M. M. Birmingham, of Berkeley, Cal. The company's plant is about ready for operation.

The Clinker Brick and Tile Company has been incorporated at Fresno, Cal., with a capital stock of \$25,000, by H. C. Farley, of Oakland, Cal., and J. H. Burnett and G. A. Adams, of Fresno. The company has taken over the plant of H. Frank Brown, on the Santa Fe railroad near Hanford, Cal., and will increase the capacity and make common and face brick and tile.

J. S. Fennell, of San Francisco, has secured the contract for supplying and placing the brick and terra cotta required for the St. Francis Realty Company's new building on Geary street, near Mason. The contract price is \$11,000.

The British ship Dalgomar has arrived at Seattle, Wash., with a large consignment of fire brick consigned to Balfour, Guthrie & Co.

E. E. Kain, W. P. Austin, F. J. Seybolt and James Dooley, of the new oil town of Taft, in the Kern county oil fields, are organizing a company to manufacture brick near that place, where a suitable bed of clay has been secured. Machinery has already been ordered for the proposed plant. The company will have a capital stock of \$25,000.

It is reported from Kern, Cal., that the old plant of the Kern County Brick and Contract Company, near that place, has been leased by Los Angeles men, who will put it in operation at once. The plant was installed about nine years ago, and was operated for some time, but has been closed for several years.

The Modesto Repressed Brick Company, of Modesto, Cal., has completed the burning of a kiln containing about a quarter million brick. J. W. Craycroft, manager of the company, is now figuring on erecting new kilns with a capacity of one million bricks.

The Simons Brick Company, of Los Angeles, Cal., has bought the clay beds of F. D. Sala near Pasadena, Cal., and now has twenty acres of clay land near its plant at Oak Knoll. This company figures that its sales of brick in Los Angeles county last year reached a total of fifty-two million.

The main machinery building of the Little Falls Fire Clay Company, at Little Falls, Wash., collapsed on June 23, injuring several workmen and doing considerable damage to the works.

Holt & Gregg, of Anderson, Cal., have completed the installation of their new continuous kiln at that place.

A brick plant is being installed at Redmond, Ore., by the Advance Construction Company, of Portland, Ore.

A. K. Furlow, J. H. Furlow, Orlando Keck, S. S. Wold and others have incorporated the Furlow Pressed Brick Company at Los Angeles, Cal., with a capital stock of \$425,000.

J. E. Brink, of Kelso, Wash., is now installing a repress at his plant, and will soon be shipping brick to the Portland, Ore., market.

The Honolulu Lava Brick Company, of Honolulu, H. I., which was recently reorganized, is now preparing to turn out brick made from lava. The plant will be in charge of H. L. Kerr, who has been in the Eastern States arranging for the shipment of machinery. The reorganized company has a capital stock of \$100,000.

President Ellsworth, of the California Pressed Brick Company, of Niles, Cal., has made a report recommending a number of improvements and additions to the plant. The stockholders of the company will meet this week to take action on a proposed issue of bonds to cover present debts and to make the recommended changes.

SUNSET.



Barrett's PAVING PITCH



Main Street, Butler, Pa. Paved in 1891, nineteen years ago. Joints filled with Barrett's Paving Pitch. Still in excellent condition despite heavy traffic.

What They Think of it in Butler

It is significant that the strongest approval of *Barrett's Paving Pitch* comes from the cities in which it has been used the longest.

A city which has had experience with pavement fillers for only four or five years will sometimes be found favoring asphalt or cement; but in the cities where the problem of maintaining block pavement has been thoroughly tried out by its engineers, for 20 or 30 years, it will be found that the authorities have settled down to the steady use of *Barrett's Paving Pitch*.

Mr. G. R. Miller, the City Engineer of Butler, Pa., for instance, writes:

"The city of Butler first used this material as filler of brick pavement on Main Street in the

year 1888. The pavement is in good condition to-day, and is subject to more heavy traffic than any other street in the city."

In cities which have had experience like this, *Barrett's Paving Pitch* is specified as a matter of course.

The engineers know that it remains waterproof for decades without any attention or care; that it keeps all joints tightly filled; that the blocks are easily removed and replaced for excavation or track work; that the vibration of street-car rails does not hurt the blocks when paving pitch is interposed as a cushion; and that there are no problems in connection with expansion or contraction because with *Barrett's Paving Pitch* "every joint is an expansion joint."

Booklet giving information on request.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

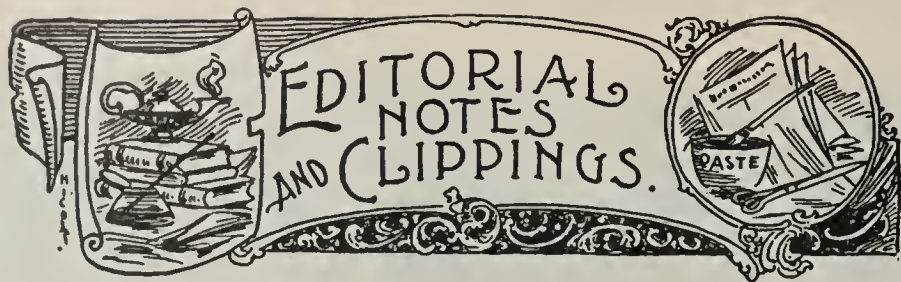
Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
London, England



The Gurney Clay Company, of Franklin, N. C., has been incorporated, with \$50,000 capital stock.

Poplar Bluff, Mo., wants a brick and tile factory, and steps are being taken for the establishment of same.

The Don Valley Brick Works, at Toronto, Ontario, Canada, sustained a \$1,300 loss by fire recently which started in the kiln sheds.

The plant of the Fraser-Myer Brick Company, at Ginger, Texas, was badly damaged by fire recently. The loss is estimated at \$10,000.

The Fireproofing Company's plant at Carbon, Ind., has been sold to Joseph Ayer and J. W. McCarel, of Brazil, Ind. They will manufacture clay products.

A company is being organized at Gordon, Ga., to establish a plant for the manufacture of brick and sewer pipe. Walter M. Lee will be glad to correspond with interested parties.

The Andrews Caoutchouc Brick Company has been organized at Petersburg, Va., with \$100,000 capital stock, for the purpose of manufacturing brick and erecting fireproof buildings.

The Aetna Brick Company, of Berlin, Conn., has filed a certificate of organization in the office of the secretary of state. The officers are President and Treasurer R. O. Clark and Secretary H. R. Clark, all of East Berlin.

J. C. Steele & Sons, manufacturers of brickmaking machinery, Statesville, N. C., have shipped recently an outfit of 40,000 daily capacity to Excelsior Brick Company, Montgomery, Ala., replacing a machine of another make.

The Plumb Brothers Brick Company, of Carthage, Ill., has certified to a change of name, and will hereafter conduct business under the name of the Hamilton Clay Company. The capital stock has been increased from \$20,000 to \$75,000.

The stockholders of the Nebraska City Brick Company have disposed of their large brick plant in Nebraska City, Neb., to C. A. Tramps, of Creston, Iowa, who will take possession at once, overhauling and rebuilding the plant and increasing its capacity.

The Capital Brick Company has been chartered to manufacture and sell all kinds of brick and tile and ornamental interior and exterior clay products. These incorporators are E. R. Haight, E. F. Crawford, George A. Martin, all of Washington, D. C., and the capital stock is \$500,000.

L. D. Morris, manager of the Golden Pressed and Fire Brick Company, at Golden, Col., was married June 22 to Miss Gertrude Golightly, of that city. It was the intention originally to take a trip to Alabama, the home of the bridegroom's parents, but, as he is unable to leave his business now, the wedding tour has been deferred until fall.

The brick manufacturers of Omaha, Neb., including Corneer Brothers, Omaha Hydraulic Pressed Brick Company, Omaha Brick Company, J. Fred Smith and the Omaha Brick, Paint and Tile Company, entertained the contractors of the city at the Builders' Exchange recently. A novel feature was introduced by bringing the refreshments into the room in hods and wheelbarrows.

John Niemi, an employe at the Fitchburg (Mass.) Brick Company's plant, was badly injured by the delayed explosion of a stick of dynamite used in blasting the clay bank. He placed two sticks in the bank and touched the fuses, and one stick exploded at the proper time. The other did not, and Mr. Niemi started to investigate; as he bent over the fuse the dynamite exploded, throwing him forty feet in the air.

The Sibley-Menge Brick and Coal Company, of Birmingham, Ala., has been organized, with a capital stock of \$2,000, with the privilege of increasing to any amount. J. W. Sibley, president of the new corporation, states that the capital will be increased to \$300,000 at once, and the properties and business of the Sibley-Menge Press Brick Company and Sibley Brothers Coal Company will be absorbed by or consolidated with the new company. The officers of the new company are: John W. Sibley, president; Joseph A. Menge, vice-president and treasurer, with the main office in the Brown-Marx build-

ing, and W. L. Sibley, secretary and manager, with headquarters at Sibleyville, where the extensive brick plant is located.

T. S. Watts and M. J. Baugus are at the head of a company that is being organized at Davenport, Okla., to erect a brick plant.

The brick plant of Ebenezer P. Dana, at Worcester, Mass., was damaged to the extent of \$1,000 by fire recently, which was caused by an overheated kiln.

George W. Pride, Jr., a well-known brick manufacturer of Philadelphia, Pa., died at his home in that city June 25, from paralysis. He was fifty-six years old and leaves a family.

Charles E. Winder, a contractor of Bedford, Iowa, will embark in the brick business. A company is being organized under the name of the Bedford Encaustic Tile and Brick Company.

The new brick yard of S. L. Alexander & Son at Centralia, Wash., is ready for operation, and will turn out 25,000 brick daily for the rest of the season, and as soon as the demands warrant the capacity will be increased.

The McArthur Brick Company, McArthur, Ohio, recently closed a contract to furnish the face brick for the handsome new building the Central National Bank is erecting at Denver, Col. The freight on the brick will cost \$22.50 per thousand.

The Woodland Clay Company has been organized at Bloomington, Ill., with a capital stock of \$50,000. The company has taken over the plant of the Anderson Tile Company, which will be enlarged and improved. They will manufacture brick, tile and terra cotta.

The Drainage Brick Company, of Chicago, Ill., has been incorporated to manufacture brick and tile. The incorporators are H. Langfeld, John W. Atkinson and J. J. McLaughlin, and their headquarters are at 145 LaSalle street, Chicago. The company is capitalized at \$10,000.

Harry M. Strang, receiver, recently sold at auction the property of the South Webster Brick Company, at South Webster, Scioto county, to Frank N. Day, of South Webster, for \$32,300. The company was thrown into the hands of a receiver some days ago. Failure to pay interest on bonds was responsible.

R. F. Martin, of New York City, has purchased over forty acres of "wild land" near Saylorsburg, Pa., of J. C. Fellencer. The land is underlaid with clay deposit. Five acres of cleared land at this point have also been purchased from the same party. Mr. Martin intends to build a big brick plant at this point, intending, by conveyor process, to carry clay from the hill banks in the purchase just made.

A. W. Grout and Mr. Lauer, of the Colorado School of Mines, representing the State geological survey, have been investigating clay deposits for several miles along the Big Thompson river and others in the foothills west of Loveland, Col. They say these are valuable for tile and possibly for paving brick. The foothills are especially rich in clays of various kinds. Samples were taken for testing at the School of Mines, and results will be published later.

The Western Fire Clay Company of Salt Lake, with a capital of \$500,000, will shortly establish works at Murray, Utah, for the manufacture of fire clay and silica brick. The company will commence work on the new plant immediately. They have obtained an ideal piece of property, comprising fourteen acres. Electrical power and a good water supply are obtainable on the new site at a nominal cost. According to plans there will be four separate plants erected on the property, the machinery for which is expected to arrive within sixty days. The new organization takes over the plant of the Western Clay Products Company, formerly the Ashton Brick and Tile Company, which had been manufacturing brick and clay products for over thirty years.

Mr. Joseph R. Wilson, aged fifty-three years, one of the best known manufacturers of bricks in that section of the country, died at his home in Baltimore, Md., July 8. He had been ill about eighteen months, and death was due to internal trouble. When a boy Mr. Wilson moved to Baltimore with his parents. After completing his education he entered the brick manufacturing business with his father. Shortly afterward Mr. Wilson, with Alexander Brown, founded the Baltimore Brick Company, of which firm Mr. Wilson became the president and general manager. Some years ago he became the general manager of the Westport Paving Brick Company, which position he held until the time of his death. Mr. Wilson may be said to have been one of the pioneers in the brick industry in Baltimore, and he was the first man to introduce the machine-made brick there. He is survived by his widow

(Continued on page 76.)



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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and six sons, Joseph R., E. Lloyd, Owens, Henry S., J. Randolph and A. Marshall Wilson.

E. T. Harrison and John Rodgers, of Waverly, Ill., are interested in the construction of a brick and tile plant at Jacksonville, Ill.

Articles of incorporation have been filed by the McLain Fire Brick Company, of Pittsburg, Pa. They have a site at Wellsville, Ohio, where they will manufacture fire brick.

Conlon & Co. has been incorporated at Jersey City, N. J., with \$25,000 capital stock. They will manufacture brick and deal in all sorts of building materials.

The Hartford Vitrified Brick Company, which has recently taken over the plant of the Cambria Brick Company at Bel Air, Md., is making extensive improvements in same.

An immense brick and tile manufacturing plant is to be built at Rockford, Iowa, by the Rockford Brick and Tile Company. The plant will be equipped throughout with modern machinery and appliances.

The Mississippi Glass Company, of St. Louis, Mo., has purchased 130 acres of land at Vandalia, Mo., and secured the mineral rights of 1,000 acres more, and will erect a modern brick plant, which will start with 300 men on the pay roll.

J. Martin Triage, superintendent of the Stevenson Brick Works, at Newton Hamilton, Pa., died at the University Hospital in Philadelphia, June 23. A widow and one daughter survive.

The J. D. Fate Company, Plymouth, Ohio, writes that trade has been very good with them, and that the volume of business has increased about 10 per cent. over what it was this time last year.

The plant of the Port Gibson Brick and Manufacturing Company at Port Gibson, Miss., was completely destroyed by fire last month. The fire originated in an overheated kiln, and as there was no insurance the loss is quite heavy.

The paving brick plant of the Barber Asphalt Paving Company at Des Moines, Iowa, has been very busy this season. During the months of April, May and June 379 cars of paving brick were shipped from the plant. In addition to this outside business they took care of a good local trade.

The death of Mr. Joseph R. Wilson, for a number of years manager of the Westport Paving Brick Company, leaves a vacancy the officers of the company may experience some difficulty in filling. They want a man thoroughly experienced in every detail in the manufacture of paving brick.

The employes of the Kittanning Brick and Fire Clay Company celebrated the Fourth in a very fitting manner by the hoisting of a fine new 18x12 flag from the top of an 80-foot pole. Appropriate ceremonies were held, during which the flag was presented to the company by the employes.

Fire broke out early in the morning of June 25 at the plant of the Queen City Pressed Brick Company, Cincinnati, Ohio, and before the fire was under control the office building, engine and boiler room were practically destroyed. The loss is estimated at \$9,000. The main building of the plant escaped the flames.

The Detroit Brick Sales Company, Detroit, Mich., is incorporated to manufacture and sell clay products and building materials. It is incorporated at \$2,000, the stockholders being P. B. Belden, of Canton, Ohio; E. F. Knight, of Bradford, Pa.; Oscar Bunke, of New York; H. R. Boegle, of New Carlisle, Pa., and E. J. Schario, Guy S. Totten and George L. Nunn, of Detroit.

The strike among the clayworkers at Brazil, Ind., which resulted in the closing down of a dozen clayworking factories in that vicinity, and lasted nearly eleven weeks, has come to an end, and with one or two exceptions the factories are all running full time. It is estimated that nearly \$200,000 have been lost to the workmen and the factories, to say nothing of the loss of business to the town of Brazil.

The brickyard strike which has been on for the last five weeks at the yards at Dutchess Junction came to a close July 1, when the employes returned to work. The men, it is understood, have returned to work under the same conditions that existed before they struck. They will make 25,000 brick for a day's work. The men had struck to have the quota of brick turned out each day reduced to 22,500. Just previous to the strike the employes were granted an increase of 15 cents

a day in the scale of wages. This still stands, and the men will get the increase.

The Busse Brick Company, of Covington, Ky., has filed articles certifying to an increase in capital stock from \$25,000 to \$50,000.

The officers of the Bibb Brick Company, Macon, Ga., celebrated the Fourth by entertaining their friends with a barbecue at the brick plant.

The Duffney Brick Company, Mechanicsville, N. Y., has completed the installation of a second brick machine and set of steam dryers, thus doubling the capacity of the plant.

The only continuous-burning brick kiln in the northern part of California has just been completed and put in operation at Holt & Gregg's yard at Anderson. The kiln holds 300,000 brick.

The Kirklin Clay Manufacturing Company has been incorporated by Charles C. and H. C. Huffine and Charles W. Wright, all of Kirklin, Ind. The company is capitalized at \$10,000.

The Diamond Brick and Clay Company, of Nelsonville, Ohio, has been incorporated, with \$100,000 capital stock. The incorporators are M. P. Ohlinger, L. H. Price, C. D. Hopkins and C. A. Stover.

The Kingsport Brick Corporation, with a capital stock of \$15,000 to \$50,000, has been granted a charter of incorporation under the laws of Virginia, with offices in Bristol, Va. J. D. White, of Atlanta, is president; F. E. Mahan, of Rome, Ga., vice-president, and F. G. Williams, of Atlanta, secretary and treasurer.

Lamar will soon have a modern brick manufacturing plant. M. D. Swain, of Girard, Kas., has made a proposition to the town that he will erect an up-to-date brick plant in the city if they will take \$15,000 of the stock of the company when the machinery is on the ground. Judge C. C. Goodall and J. S. Harty are at the head of the Lamar people interested in the movement.

On Thursday, June 23, about midnight, an attempt was made to wreck the manufacturing plant of the Federal Terra Cotta Company, situated at Woodbridge, N. J., by the use of dynamite. The watchman on his rounds discovered two men at work, who fled at his approach, leaving two sticks of dynamite with fuses attached. The motive of this attack is unknown to the management. Pinkerton detectives are at work on the case.

RICKETSON'S MORTAR COLORS SET THE STANDARD.

Reports from reliable sources seem to indicate a very promising activity in the building trades throughout the country during the summer months. We hear from the Ricketson Mineral Paint Works, of Milwaukee, that orders for their famous "Red Brick" brand mortar colors continue to come in at an unusually good rate. The products of this concern have become almost the set standard for highest quality, and their goods have a country-wide distribution. Wherever builders want the very best in mortar color they call on the Ricketsons, and any report coming from them is pretty well indicative, therefore, of the general condition of the building trades as a whole. The company has prepared a neat folder showing their complete range of tints in the natural colors, which should be in the hands of everyone interested in the building trades. A postal will get it for you.

THE ANTON VOGT KILN CONSTRUCTION COMPANY,

Down-Draft Kilns designed for all purposes.

OUR SPECIALTY

A Superior Kiln for Common Brick that is
AS CHEAP AS an updraft kiln.

Fort Smith, Arkansas.

References: Munson Bros. Brick and Tile Works, Capron, Ill.; Patton Clay Mfg. Co., Patton, Cambria Co., Pa.; Tom Hope, Pres. Ada National Bank, Ada, Okla.; Cooper and Bones Brick and Tile Co., Ada, Okla.; Alabama Brick and Tile Co., Hollywood, Ala.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

SEATTLE'S BUILDING MOVEMENT keeps up to the records of the past. The movement has been great, and there seems to be no letting up. During June there were issued 1,087 permits, carrying a construction value of \$1,519,955. While the last six months have been entirely satisfactory, in view of the conditions in general, it is generally believed that the coming six months will exceed the results of either of the preceding two years. The manner in which building keeps up, and the number of vacant houses now being seen, will no doubt bring up the same old cry, heard every year, that building is overdone. Perhaps there is more foundation for the talk now than there has been when it was made in the past. Seattle loses a considerable share of its population during the summer. Many thousands of families go to the country or into camp during this time. There are so many places available for these purposes, all within easy reach of the city, and with cheap transportation, that the moving into camp or into summer cottages on the different lakes or along the Puget Sound is not confined to the better class of people only, but takes people in every walk of life. When fall comes and people return to the city, it will show very soon if building was overdone or not.

In Tacoma there is a little safer feeling in respect to building than in Seattle. The Tacoma Commercial Club let the

contract for their new building, which will be the fifth large building in the city. The gain in building in Tacoma during May was ranked second in the United States, according to Construction News.

In the report of the first annual meeting of the Washington Clayworkers' Association it was stated that the size of the brick adopted was $8\frac{1}{2} \times 4 \times 2\frac{1}{4}$. As there was quite a confusion regarding the adoption of the reports, it has now been reported that the size of the brick as adopted is $8 \times 3\frac{7}{8} \times 2\frac{3}{8}$, and Secretary Gibson requested this to be corrected accordingly.

William W. Kellogg Company has been incorporated at Seattle, with a capital of \$25,000, by William W. Kellogg, L. C. Henry and J. G. McFee. Mr. Kellogg has represented the Rookwood Pottery on the Pacific coast, and he will enlarge business now considerably.

A large bed of excellent potter plastic clay has been discovered near Stites, Idaho. Samples of the clay have been sent to the University of Idaho for testing, and should these tests prove satisfactory a plant will likely be built for the handling of this material. The Twin City Brick and Tile Company of Kennewick has been incorporated at that place. They will manufacture common brick, and Mr. W. R. Amon is the manager.

After testing the clays found in the vicinity of Elkin, Ore., and being satisfied that they could be worked successfully, J. W. Robinson is now completing the erection of a brick plant at that place. He has interested the Commercial Club, and will spend \$100,000 in establishing the plant. SIWASH.

Seattle, Wash., June 30, 1910.

FOR SALE, WANTED, ETC.

WANTED—Superintendent who is willing to take some stock to start a brick plant. Address C. T. BEATON, 7 1 cm Boykins, Va.

FOR SALE.

A four mold new Ross-Keller Triple Pressure Brick Machine, will make a second-hand price on it. EXCELSIOR TOOL & MACHINE CO., 7 3 d East St. Louis, Ill.

FOR SALE—CHEAP.

Ten track Barron steam tunnel dryer, style "B" Martin machine, with automatic striker-off, Potts sander, and 14,000 white pine pallets.

SMITH BROS. BRICK CO., 7 1 d Park Bldg., Pittsburg, Pa.

WANTED—Situation as superintendent, one with a thorough practical knowledge of brick and pottery ware in all their branches. Can build plants, both brick and pottery; have own plans for continuous and down-draft kilns, also all kinds of pottery kilns. Make my own glazes for enamel of pottery ware. Eleven and a half years at last situation. References. Address

BOX 7, H. W., 7 1 d Care Clay-Worker.

WANTED, A PARTNER.

I am seeking a partner to invest \$10,000 as working capital in a most modern common brick plant in the vicinity of Baltimore and Washington on terms and conditions which will be inviting. This proposition is in every particular exceptional, and only those having the necessary cash and experience in the brick business need apply. Address

BOX 7, TOWERS, 7 2 d Care Clay-Worker.

WANTED—To buy pug mill not less than 24 inches in diameter and filter press. Give description and price. Address BOX 7, K. P., 7 1 c Care Clay-Worker.

WANTED—Yard foreman upon paving brick plant. One capable of superintending sorting and shipping. Address with references and wages expected, BROOKS, 7 2 d Care Clay-Worker.

FOR SALE.

One 18 by 36 inch Fitchburg engine; two boilers for same, with pumps, pipes and full equipment of valves, etc.; one 20 by 44 inch steam sewer pipe press, with a large assortment of dies for sewer pipe, drain tile and flue linings; auger and plunger brickmaking machines, cars, pallets, pulleys and shafting; in fact, the entire outfit of a large clay product plant. Ask for what you want; it may be in this lot.

E. A. KING, 7 1 l Keyport, N. J.

FOR SALE.

The entire property of the Sheridan Brick Works, consisting of 25 acres in Clay county, Indiana ($\frac{1}{2}$ mile north of Brazil), 5 boilers, 4 engines, steam shovel, Freese "J" combination brick machine and No. 24 Automatic cutter, 24 track Standard Dryer, kiln, capacity 75,000 brick per day.

This plant has been manufacturing high grade medium price face brick which has been well introduced throughout the middle West. Plant is ready to operate, manufacturing either common or face brick. At very little expense could be converted into a modern drain tile plant.

For full particulars and price write THE MARION TRUST COMPANY, 7 2 d Receivers, Indianapolis, Ind.

FOR SALE.

The only brick yard in city of 25,000, three boilers, one Potts machine, steam dryers, four brick kilns and orders for 2,000,000 brick.

RICHMOND BRICK CO., 7 1 d Richmond, Ind.

FOR SALE.

Up-to-date brick plant, modern machinery, 40,000 daily capacity, in southern gas belt of Kansas. Gas five cents a thousand. For particulars apply to

WERTH'S INSURANCE AND FINANCIAL CORPORATION, 315 Chestnut St., 7 1 cm St. Louis, Mo.

A Bargain to a Quick Buyer.

The following machinery will be sold in part or as a whole:

One 30 h. p. boiler and 25 h. p. engine; Leffel Water Wheel Co.'s make.

One extra heavy Quaker brick machine, with belts, shafting and conveyers.

One Quaker sander and Quaker or Wellington five-leaf dump table.

Three Raymond single-deck, ten-pallet trucks, nine brick trucks.

20,000 five-eighths, three-board top and three-cleat white pine pallets.

15,000 $33\frac{1}{2}$ -inch by 10-inch, 5,000 $32\frac{1}{2}$ -inch by 10-inch pallets, made by Mershon, Eddy, Parker Co., Saginaw, Mich., and racks for same, consisting of white pine posts and cleats. These racks are double posts. Rooves and dashes for same and enough grate bars and kiln doors for 36 arches.

This machinery has been used for five years and is in first-class condition. Address,

CHAS. E. GRUBE COAL CO., 5 3 dm Springfield, Ohio.

(Continued on next page.)

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—Martin steam pipe rack dryer, with steel pallets for same. Capacity, 20,000. Now in use.

ZERRENNER BROS.,
6 5 c New London, Wis.

WANTED—Pug mill man. Making paving and vitrified face brick only. Perfectly competent men only need answer.

BURKE BRICK CO.,
7 1 d Ft. Smith, Ark.

FOR SALE.

Bevel geared Pug Mill, 10 feet long, used only a short time.

BLOOMINGTON PRESSED BRICK CO.
Bloomington, Ill.

FOR SALE—At a sacrifice, fine clay farm with large terra cotta, tile and pressed brick clay deposits, little striping, near transportation. Write for samples of clay and tile.

BOX 7, H. J.,
7 1 d Care Clay-Worker.

FOR SALE.

Brick plant which will make anything made from clay, coke oven tile, shingles and all kinds of fancy brick. Situated on the C. & O. railroad one mile above Charleston, W. Va. Address

BOX 7, W. VA.,
7 1 dm Care Clay-Worker.

WANTED—Position as superintendent or head burner on brick or tile plant, stiff or soft mud, dry press or paving brick. Would consider buying an interest in a good going or new plant. Best of references. Address

BOX 7, O. A. M.,
7 1 lp Care Clay-Worker.

FOR SALE.

No. 1 Giant Auger Brick Machine.
Three Standard nine-foot Dry Pans.
Both American Clay Machinery Co.'s manufacture.

One Freese Cutting Table, 16 brick capacity.

READING SHALE BRICK CO.,
6 3 c Reading, Pa.

A BARGAIN.

In one of the best equipped clay and shale brick plants in Pennsylvania, making the finest quality brick, selling at good prices. Located near Philadelphia. Best of reason for selling. Will leave money in plant. Address,

BOX 4, NORRIS,
4 tf d Care Clay-Worker.

FOR SALE—Latest improved Madden & Co. tile machine, used less than three months. Disintegrator. Dies from 4 in. to 24 in. Very cheap for immediate sale. Address C. H. CRONINGER,
7 1 c Hartford City, Ind.

FOR SALE.

One Eagle repress, double die. Good condition and numerous dies. One Dayton Perfection press, smaller size.

LEHIGH FIRE BRICK WORKS,
7 2 c Catasauqua, Pa.

WANTED.

Those in trouble of any kind in the building brick line to address

M. C. WILLIAMS,
7 1 d 701 North Gibson St.,
Princeton, Ind.

FOR SALE—In first class condition, Centennial Brick Machine with lubricating die, extra front and dies for hollow ware and drain tile.

ALFRED CLAY CO.,
7 1 d Alfred, N. Y.

WANTED.

In the rapidly growing city of Mena, Ark., a brick manufacturing plant. Good clay abundant and fuel cheap and convenient. Address for further information,

G. B. WOOD,
6 6 dm General Agent, K. C. S. Ry.,
Mena, Ark.

FOR SALE—One second-hand 9 ft. dry pan, 2 second-hand 8 ft. wet pans. Two American Clay Machinery compounding crushers. All of the above in good working order, with some repair parts for same.

GREAT EASTERN CLAY CO.,
6 3 cm 39 Cortlandt street,
New York City.

GOOD CLAY LAND FOR SALE.

A good sized piece of very desirable clay land can be had near Minneapolis, the leading market of the Northwest; \$40,000 cash required to get the land. For further information address

AXEL ANDERSON,
Secretary Northwestern Clay Association, 843 Security Bank Building,
7 2 d Minneapolis, Minn.

FOR SALE.

Pressed brick plant; 20,000 capacity for 10 hours; will sell one-half or all; owners are not brick men; all new machinery, five new kilns, three complete and two crowns are not on yet; will give a good brick man one-half interest on good terms, or will pay commission to any one to find a good brick man to take one-half interest or all. Write for particulars, cut and description.

BOX 5, W. T.,
5 3 cm Care Clay-Worker.

WANTED.

A manager for paving block plant in the East. Must be thoroughly experienced in burning, manufacturing, and all the details of the production of paving block. Give references and former employers. Address

BOX 7, WESTPORT,
7 1 d Care Clay-Worker.

FOR SALE—Brick plant in Northeastern Minnesota. Unlimited quantity of clay and market. Brewer machinery and side track to plant. Will be sold at a bargain to satisfy creditors. Lack of experience the reason for closing. State Bank of Barnum, Assignee. Address

BOX 7, H. C. H.,
7 1 d Care Clay-Worker.

WANTED.

A red silica rock sand that will not flux under twenty-five (25) hundred degrees of heat. Also want a fine loam sand for sanding building brick that will burn cherry red or salmon color at twenty-three (23) hundred degrees of heat.

Any person knowing of such sand or having same for sale will kindly communicate with the

C. P. MAYER BRICK COMPANY,
7 tf d 906 Park Bldg., Pittsburg, Pa.

REBUILT ENGINES AND BOILERS.**ENGINES—CORLISS.**

20x48 Wheelock, 18x36 Ohio Heavy Duty, 14x42 Hamilton, 14x36 Vilter, 12x36 Allis, etc.

ENGINES—AUTOMATIC.

15x14 Erie, 14¼x16 Buckeye, 11x16x12 Buffalo Compound, 13½x15 Taylor, 13x16 Erie, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 10¼x14 Buckeye, 10x14 Noyes, 9x12 Russell, 7x10 Atlas, etc.

ENGINES—THROTTLING.

16x22 H. S. & G., 14x18 Sinker-Davis, 14x14 Lewis Vertical, 12x16 Reed, 12x14 Gibbs, 12x12 Wells, 10x16 Bass, 10x12 Oil Well, 9x12 Ball, 9x10 Reed, 8¼x12 Leffel, 7x10 O. & S., 6x8 Industrial, etc.

BOILERS—STATIONARY.

72x18 high pressure, 72x18 standard, 72x16, 66x16, 60x16, 60x14, 54x16, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, 36x12, etc.

BOILERS—FIRE BOX.

100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10, and 8 H. P., etc.

BOILERS—VERTICAL.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 H. P., etc.

HEATERS.

All sizes, open and closed.

PUMPS.

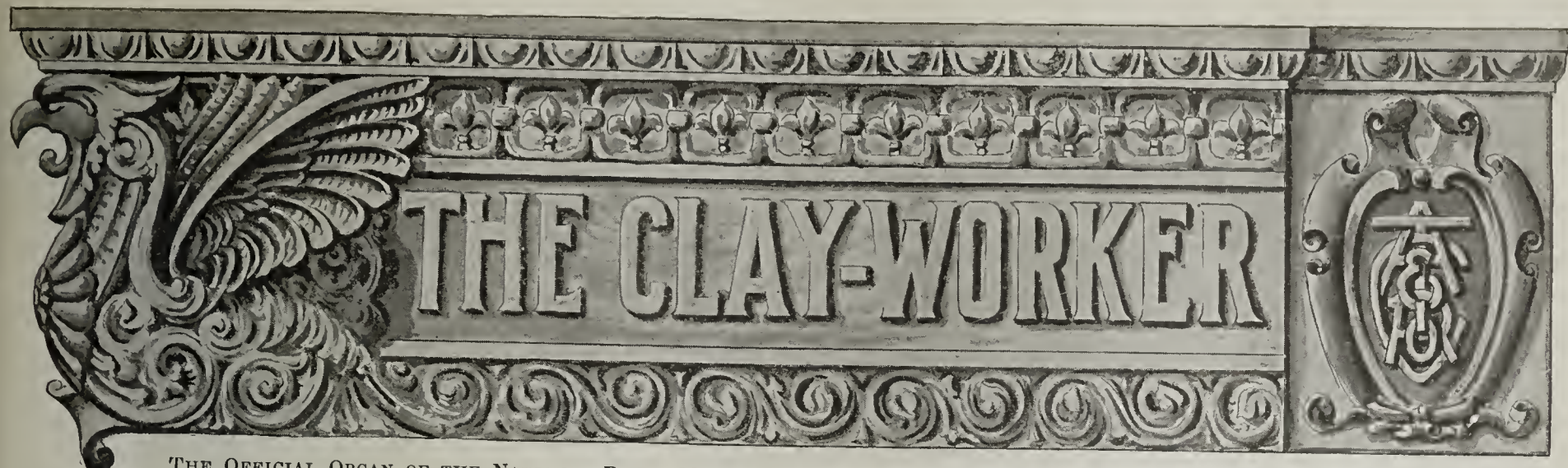
All sizes, Single and Duplex.

MISCELLANEOUS.

Saw Mills, Lath Mills, Edgers, Cut-off Saws, Re-Saws, Blowers, Exhaust Fans, Tanks, etc. Write for list.

Also full assortment of new machinery. Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers St., Cincinnati, Ohio.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LIV.

INDIANAPOLIS, IND., AUGUST, 1910.

No. 2.

Written for THE CLAY-WORKER.

WHY NOT FIREPROOF HOUSES?

Modern Brick and Hollow Tile Buildings More Economical and Sanitary Than Frame Structures.

BUSINESS MEN IN ALL SPHERES of life, realizing the folly of erecting combustible buildings, have turned within the past five years to building their factories, warehouses, stores and other structures of non-burnable materials. Every time a ramshackle structure is burned or torn down it has been replaced with walls of brick and roofs of tile

that a vast change is taking place in the sentiment of home builders, for in the past three or four years people have demanded more and more that they be protected from fire. With advanced methods used in the manufacture of hollow tile, hollow brick and kindred substances used for fireproofing purposes, and the cheapness with which such walls can be built as compared to combustible wood, these promise to replace within a very few years the mass of materials now used for residence construction. They promise to incorporate themselves into buildings which will at once be things of beauty and indestructible. At the present time the very best residences are being built of either fireproof or semi-fireproof



A Tile Roofed Brick House, Practically Indestructible by Fire.

or other materials on which the ravages of the flames have no effect.

Now the light is slowly but surely breaking upon the home builder. Can he afford to leave his wife and loved ones in a frame building, susceptible to all the elements, particularly fire, while he keeps his merchandise securely housed in fireproof buildings?

Merely as a matter of economy he is realizing that, while the initial cost of a fireproof or semi-fireproof home is more, the gain in the course of five or ten years makes up the difference, and he has an enduring structure which will outlive his family by many generations.

Architects in all parts of the country say that they realize

materials, according to the means and fancies of the owner.

For artistic effect nothing can excel pressed brick. That is a settled fact that none will dispute. Yet there are people who perhaps cannot afford pressed brick, or perhaps fancy the newer style of using cement stucco on brick walls. For these walls ordinary brick may be used if desired. There is made, however, an excellent type of hollow brick, which is interlocking, and also the large hollow tile, which can be built up just as brick. The stucco applied to these walls gives a waterproof and fireproof surface which many consider quite attractive. After the brick or tile are laid up in a wall eight or twelve inches thick, the stucco, consisting of a rich mixture of sand and cement, is applied direct to the rough outside

surfaces, while common plaster can be placed on the inside of the wall spaces, insuring a dry interior. Properly applied, this stucco is held by architects to be practically indestructible, while the brick walls, if properly built, will last for centuries. The ceilings can be constructed of tile or reinforced concrete.

An advantage in the use of tile, in addition to its lower cost, is the speed with which it can be set up as compared to concrete, which must be given time to set. Solid concrete walls usually "sweat." Hollow interlocking bricks are now on the market, and can be purchased quite reasonably. They can be plastered on direct, both inside and out.

Thanks to hollow tile, brick houses can be thoroughly fireproofed. With exterior walls of brick and interior walls, floors and roof of tile, a house can be built which will resist for generations the ravages of time.

There are many arguments in favor of fireproof houses. It is true that they cost more, originally, to construct. The fact that insurance can practically be dispensed with is a big item in the course of a few years. The saving thus effected will often pay the initial difference. They are vermin proof. Rats, mice or bugs cannot infect them. The item of depreciation is absent to a great extent. Real estate appraisers in the large cities reckon that a frame dwelling depreciates from 100 per cent. to practically nothing in a period ranging between thirty and forty years. That means that if you invest \$5,000 in a home to-day and it is built of wood, you may see your investment wiped out in forty years merely by the ravages of time and decay. With a fireproof house it is different. The hundreds of dollars spent in maintenance after the third or fourth year can be economically added to the initial cost. In forty years, architects and other experts say, you will have practically as good a house, with the exception of floors, which may have to be renewed, as you had when it was built.

But, above all other considerations, fireproof homes bring comfort and joy because their occupants are free from that hideous fear which haunts so many people—that their home may be burned down while they are asleep at night, or while they are away from it. Certainly the question of erecting fireproof residences is well worth the consideration of every person who is interested in acquiring a home for himself and family.

BRICK OR FRAME: WHICH?

My decision to build a brick house came out of a timely talk with a friend. This man had a house in which he had lived about five years when I went to him and told him of my plans for a home.

"Perhaps you'll be able to tell me something that will help," I suggested.

"First of all," he replied, with an emphasis that surprised me, "don't build a frame house."

"But yours is frame. You built—"

My friend smiled. "That's why my opinion of frame houses is worth something. My neighbor's house is brick; that's why my opinion is worth still more. I've seen both sides."

"But I can't afford to use brick," I objected.

"You can't afford not to."

"Well, tell me all about it." And my friend did.

"Six years ago," he said, "I made up my mind to build. Henderson, my next door neighbor here, started his home at about the same time. Our lots were just alike—in fact, their cost had been the same to the cent.

"We worked over the plans, my wife and I, the way they all do, and when we thought we had them right we laid them before a contractor whom we know to be honest and reliable. He offered to put up the house in wood for \$7,000, in brick for \$7,500.

"After paying \$2,000 for the lot, we had \$4,000 left. So we had to borrow \$3,000, or \$3,500, according as we chose wood or brick. There was no difficulty about getting the extra \$500. Because of the better building the local bank was only too glad to lend the larger amount, at 5 per cent.

"But somehow the brick didn't seem worth it to me. Like thousands of other men who set out to build, I had never taken the pains to learn anything much about materials. I had the notion that brick was a luxury—for people who wouldn't miss the money.

"It was different with Henderson. He chose brick. Our



A Fireproof House of Tile and Stucco.

means were about the same, and I thought he was very extravagant.

"The first thing to make me feel his advantage occurred during the construction. His brick came promptly from a neighboring brickyard. My lumber was tied up on some railroad siding a hundred miles away. If you think that was mere luck you are mistaken. With every day that passes the source of the lumber supply becomes more remote, while it is always growing easier to get brick near at hand.

"The labor for building a house of brick is available everywhere. It is a simple material to handle, and there is no community so small that competent bricklayers cannot be had. In masonry there is less chance of leaving hidden flaws than there is with carpentry.

"The appearance of a house counts heavily, not only for the satisfaction it gives the owner, but as an asset. In the first month or two I was inclined to congratulate myself that my house lacked the look of newness which seemed to stamp Henderson's. That did not last long. He trained vines over his house, and the weather began to give a pleasing tone to the walls.

"You think my house is pretty? So it is. But observe

the impression of solidity, of substance, that emanates from the other.

"If I train vines on my walls, it serves only to hasten the wood's decay. The weather simply washes off the paint. I've had to give the house one painting since I began living in it, and it will soon need another. Each time it costs about \$100. Henderson's brick walls don't have to be painted, and they look better every year than they did the year before.

"Every once in a while I have trouble from frozen plumbing; Henderson never does. In extremely cold weather I must have grate fires or oil stoves to help out the furnace; he never needs them. In summer his house is ten degrees cooler than mine. Brick is a poor conductor of heat—but I 'never thought of that.'

"A frame house reaches its 'prime' as soon as the last carpenter and the last painter are out of the way. From then on it is inevitably on the downward path. Every year the expense of keeping it in good order becomes greater. A brick house grows more beautiful and more valuable as time passes, with comparatively little attention. In England there are brick houses that have stood three centuries. You see I know something about the subject now. It's a pity I hadn't learned it in time.



The Red Tile Roof Makes This Fireproof Residence Exceptionally Attractive.

"And I built of wood to avoid borrowing \$500—about 7 per cent. of the value of the frame building—which I could have had for the asking. It was one of the most expensive things I ever did. It is just what you and thousands of more like you are about to do, because you won't take the trouble to make a few easy inquiries and learn something about materials before you choose."

Chastened and wiser, I rose to go.

"But you haven't heard the worst of it," said my friend.

"What is that?"

"My wife stood out for brick and I overruled her. She has never said, 'I told you so,' but I can't help feeling she's thought it may a time.

Copyrighted, 1910, by The Building Brick Association of America.

Some are saying that the idea of the corporation is not so much for taxing purposes as a sly means for gaining federal control of corporations. If so, then what shall we do that the people may really control the federal powers and not merely think they do?

Written for THE CLAY-WORKER.

PUGET SOUND NOTES.

THE BUILDING OPERATIONS of the Pacific Northwest have been quiet this month. The prices for brick are holding up, but in some instances brick have been sold lower than usual. There are quite a number of new buildings announced by architects and owners. In some instances the plans and specifications have been prepared and estimates made, while in other cases nothing has been done save a mere sketch of the proposed building. There is considerable talk about the new forty-story building which L. C. Smith, of Syracuse, N. Y., will erect on the corner of Yeslerway and Second avenue, and will cost, according to the latest plans as drawn, in the neighborhood of \$2,000,000.

The paving and sewer pipe business is good, and much city and county improvement is going on. The Denny-Renton Clay and Coal Company secured a contract from the Pacific Telephone and Telegraph Company for 300,000 feet of vitrified clay conduit pipe. The award was made in competition with the leading conduit manufacturers of the East, and is a distinct triumph for Western made goods over their Eastern competitors.

North Yakima has again let a large contract for brick paving, and the work will be done by the Anderson Construction Company. The paving is on A street, and must be completed in 100 days.

Wenatchee is busy with much building work. The New Washington Hotel, built of brick with terra cotta trimmings, is assuming proportions, and when completed will give Wenatchee one of the finest hotels in central Washington. The Morton building and the Ellis Forde Company's warehouse are the next two largest buildings under construction in the city.

The Roman Brick Manufacturing Company, of Colville, eastern Washington, has just completed the setting of three kilns of brick, each holding half a million, and will start the burning in ten days. Their entire output has been contracted for by local contractors in advance of the burning.

The Denny-Renton Clay and Coal Company, which has made an arrangement with the city of Seattle to divert their sewerage from their town of Taylor in the Cedar river watershed, is having trouble with the farmers along Issaquah creek, where the drainage system will be

diverted to. The waters of Taylor and Webster creek are to be diverted to this Issaquah creek, and the farmers have begun injunction proceedings in the superior court. Mass meetings were held by the farmers, and a large sum of money raised to fight the new drainage system. Their contention is not so much in regard to the sewage as to the volume of water, which they declare already menaces their property during the rainy season, when the creek, narrow and flanked by steep banks, cuts into their property. Chief Sanitary Engineer Stevens inspected the new drainage system recently.

The Lake Union Brick Company, of Seattle, has completed their new Youngren continuous gas-fired kiln, and will start fire as soon as the gas plant is in working order.

A decision of the State supreme court which is of interest to all brickmakers who furnish brick under contract has been made in the suit of Megrath & Duhamel against the Port Angeles Stone Company. The supreme court decided that there was no merit in the case. The decision is based upon the finding that the contractors never made specific demand upon the stone company for stone, and that therefore the Port Angeles Company did not default on its contract to furnish stone for the federal building in Seattle.

SIWASH.

Written for THE CLAY-WORKER.

MUNICIPAL ENGINEERS INSPECT BRICK PAVEMENTS IN FIVE CITIES.

THE CAUSE of properly constructed vitrified brick pavements was materially advanced recently, when committees representing the American Society of Municipal Improvements and the Organization of City Officials for Standardizing Specifications made a trip of inspection, personally conducted by Will P. Blair, secretary of the National Paving Brick Manufacturers' Association. The committees included some of the leading city engineers of the country, who saw for the first time the possible results from properly constructed brick pavements.

The extent of the influence of the trip cannot be measured. For not only did the men representing the committees obtain definite information upon which to base recommendations for the standardization of brick paving specifications, but they were personally converted to the use of cement filler as the efficient finish for the vitrified brick pavement.

It has long been a recognized fact among manufacturers of paving brick that the general adoption of carefully drawn standardized specifications for paving with brick would be the

filler and no filler at all—these were some of the plans which the investigators found had been utilized in the finish of brick pavements. And from the mass of information it is safe to predict that the committees will discriminatingly select those facts which will enable them to recommend specifications for properly constructing brick streets that will save to the taxpayer thousands of dollars in maintenance cost, and that which best satisfies the property owner brings the richest reward to the brickmaker in the end.

The members of the committees and several other invited



South Sixth Street, Terre Haute. Prof. Ira O. Baker (to left) marvels at its perfect condition after nineteen years of use with virtually no repairs.

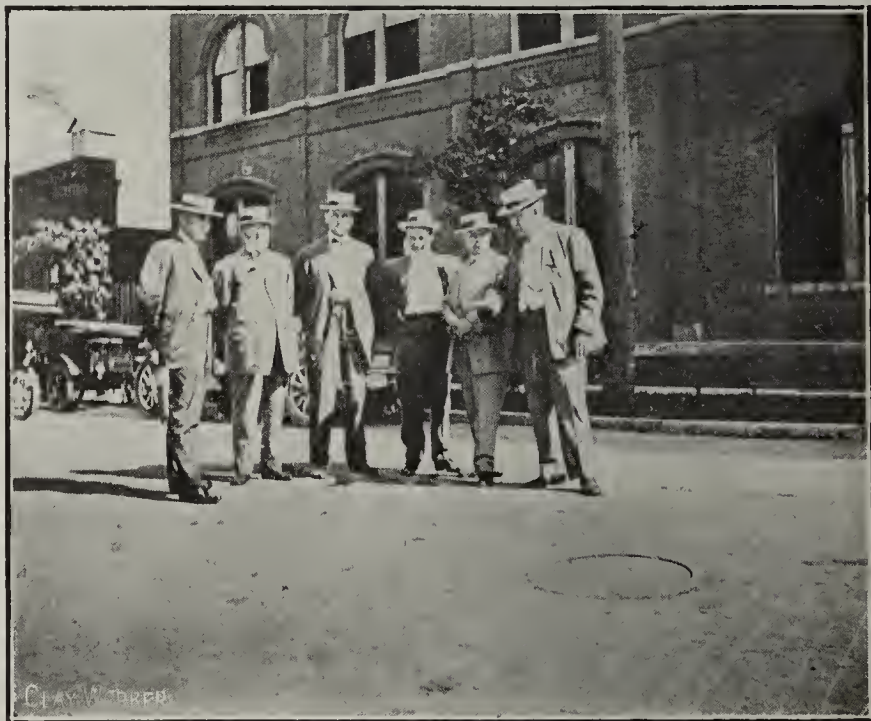
means of largely increasing this class of street improvements, because more uniformly good pavements would result. To this end the National Paving Brick Manufacturers' Association formulated specifications, based on the experience of cities which had produced satisfactory brick pavements, and where these have been followed intelligently and conscientiously excellent pavements have been constructed. But the limit of human vision has interfered in many instances, for those charged with the responsibility of making improvements have been unable to see in their minds the admirable result that would follow a rigid enforcement of the specifications, and have either ignored them, little appreciating their value, or have allowed contractors to comply with them half-heartedly and ruin the pavements. The recent inspection trip enabled the personnel of the party to appreciate to the fullest extent the highest degree of perfection that is possible by a complete compliance with the details of this specification. No less so was the undesirable condition impressed in instances where details were neglected.

Good streets, bad streets and utterly indifferent streets were viewed in five different cities. Brick pavements constructed under various conditions and by every known method were pointed out. Cement filler, asphalt filler, tar filler, sand



Alley Intersection Which Shows Wear Because of Poor Construction.

guests gathered in Indianapolis and visited the Indianapolis Motor Speedway, where the cement filled, vitrified brick track caused some astonishment among those who had not before seen the broad expanse of smooth surface, uniform and even over the entire two and one-half mile course. It was ex-



Poplar Street, Terre Haute, Down Three Years. A Fine Pavement.

plained that the work had been done under the personal supervision of the National Paving Brick Manufacturers' Association, which increased in the minds of some present the belief that it was an exception, and might not be duplicated under ordinary conditions on a city street.

On the afternoon of the same day, however, this thought was proven to be erroneous. A trip was made to Terre Haute, where the first streets visited—South Fifth and South Sixth streets—were found to possess a brick surface even more

smooth than the Speedway track, but the most astounding fact came with the announcement that the streets had been down for seventeen and eighteen years, respectively, and were growing smoother and more satisfactory with each year's wear.

Other streets equally as good as the track surface were inspected in Terre Haute, which has more miles of properly constructed brick streets than any other city of its size in the country.

In Cincinnati the party saw brick streets as they ought not



North Thirteenth Street, Terre Haute, Paved in 1907.

to be. In a half day's travel in automobiles not a brick street was found that would of itself recommend the building of brick pavements. And the unsatisfactory conditions were due to poor construction alone. If any filler had been used at all on most of these improvements, it had been either asphalt,



Ohio Street, Terre Haute, an Excellent Pavement, Subject to Heavy Traffic.

tar or sand, which had naturally disappeared, leaving the edges and corners of the brick wholly unprotected, with the inevitable result that horses' shoes and the metal tires broke and chipped the brick until the tops were as round and rough as a granite block. In a few instances streets were found where a pretense had been made at using a cement filler, but the proportions of cement and sand had been so impossible and the method of application of the filler so careless that practically none of the filler adhered, and the surface had

become almost as rough as on the soft filler pavements.

Again, in Columbus, the party found that the soft fillers, such as asphalts and tars, had heretofore been the customary requirement of the specifications, but, on account of otherwise superior construction and the constant and intelligent attention of the repair department, the streets were in far better condition than those of Cincinnati. Several of the pavements were explained to be fourteen, sixteen and twenty years old, and, in spite of the faulty construction through use of a soft filler, were in far better condition than any pavement of other material of half the age.

It remained for Cleveland to open the eyes of the investigators, however. In automobiles the party left the Hollenden Hotel, almost too weary of brick pavements to drop their gaze to the ground. But they had not proceeded far along West Fourteenth street, formerly Jennings avenue, before one member and then another began to perk up and then to ask questions. Despite the fact that street railway tracks occupy the center of the roadway, the brick surface was as smooth as a floor, with no breaks or blemishes adjacent to the rails. Inquiry brought out the fact that the street had been down five years, and had not cost a cent in maintenance repairs.

"Then that must also be an exception," was the comment of members of the party. But as the automobiles sped on



Brick Pavement in Rear of Bement & Rea's Wholesale Grocery, Where Wood Block Was Replaced Because It Was So Slippery Horses Were Frequently Disabled.

and on, along miles of brick streets, allowing glimpses through cross streets of miles more of similar pavements, with never a bump or a depression to jar the rapidly moving machines, this thought was also eliminated.

Holmden avenue, down twelve years on a sand foundation, commanded admiration for its broad expanse of level surface. Broadview, in South Brooklyn, three years old, and on a concrete foundation, was another wide residence street that attracted attention. Out into the country, beyond the borders of the city, the machines continued to travel on brick pavements, for the committees learned that there are almost four hundred miles of such improvements in Cuyahoga county, outside the city of Cleveland. Up long hills and down steep grades—the story was always the same—vitrified brick pavements in excellent condition, regardless of the time they had been down.

But it was to the city streets that the committees devoted their investigations largely. They found several unusual opportunities for making comparisons of pavements on which tar and asphalt fillers had been used and those finished with the cement filler. Always the comparison favored the latter. On Canton avenue was found the broken edge bricks with the rounded tops, due to the disappearance of the rubber as-

phaltum filler, while around the corner on Seventy-second street was found a pavement, smooth and uniform of surface, the cement filler having been used. Both these pavements were laid five years ago by the same contractors and at the same time.

The soft filler streets were the exception in Cleveland, where experience has taught the engineers the value of welding the whole brick surface together into a compact mass by the careful application of a properly compounded cement filler. The length of life of such pavements has been extended, the surface remains more uniform, the sanitary conditions are superior, and, with the aid of expansion joints and the underlying sand cushion, a less noisy street is produced, because the brick rest firmly on their foundation at all times.

The committees, of course, have given no intimation of the nature of a report they will make, but the Cleveland way impressed the members individually. Those who made the trip were the following: C. H. Rust, city engineer of Toronto, E. A. Fisher, city engineer of Rochester, and Charles C.

Brown, former city engineer of Indianapolis, representing the committee from the American Society of Municipal Improvements; Edward H. Christ, member of the Board of Public Works of Grand Rapids, D. M. Roberts, city engineer of Terre Haute, John B. Hittell, chief engineer of Chicago, and Henry Maetzel, chief engineer of Columbus, Ohio, representing the committee from the Organization of City Officials for Standardizing Specifications. Others who made all or part of the trip were: Henry W. Klausmann, city engineer of Indianapolis; Prof. Ira O. Baker, dean of the Mechanical Engineering School of Ohio State University; Prof. F. H. Eno, professor of municipal engineering, Ohio State University; W. T. Blackburn, of Paris, Ill.; Spencer M. Duty, of the Deckman-Duty Company, Cleveland; James G. Barbour, of the Metropolitan Paving Brick Company, Canton, Ohio; C. C. Blair, of the Bessemer Limestone Company, Youngstown, Ohio; Col. Harry B. Smith, publisher of "Public Officials," Indianapolis; Theo. Randall, publisher of *THE CLAY-WORKER*, Indianapolis; M. W. Blair, engineer, and E. D. Rich, assistant secretary of the N. P. B. M. A.

COMPETITION FOR A \$4,000 BRICK HOUSE.

IN THE July issue of the *Brick Builder* the report of the Jury of Award, together with the designs for the four prize-winners and six honorary mentioned designs are published, showing the result of the \$4,000 prize competitions offered by the Building Brick Association of America. This competition was primarily for the collection of plans and designs by the leading architects of the country for an inexpensive brick house to be used in the publicity and advertising campaign of the association. A little over one year ago the same association, then known as the Clay Products Association of America, held a similar competition, but in this case for a brick house that should cost approximately \$10,000. Four prizes were offered, as in this instance also, aggregating \$1,000. The first amounting to \$500, the second \$250, third \$150 and the fourth \$100.

So successful was the first competition, 145 architects entering the contest, and so well was the book, known as "The House of Brick," compiled from these plans and designs, received by the clayworkers over the country and such a demand made for a book along the same line, but for a brick house not to cost over \$4,000, that the association began its second competition soon after the adjournment of the last N. B. M. A. convention at Pittsburg, at which time the name of this publicity association was changed from the Clay Products Association to the Building Brick Association.

The *Brick Builder* promoted the competition as formerly and secured many interesting and attractive designs and plans, from which the Jury of Award made its selection and reported as follows:

Report of the Jury of Award.

The mandatory conditions of the program for this competition "A Brick House, the cost not to exceed \$4,000.00," necessarily made the problem rather a difficult one if the condition as to cost was to be met, and it was so recognized by the jury who approached their part of the problem in rather a skeptical frame of mind as to the ability of any one to produce a design which should meet this condition and at the same time have the charm and good planning which should be demanded in a competition of this kind. It was recognized by the judges that in the vast majority of competitions for low-priced houses held within the past few years apparently no attention had been paid to the condition as to cost, whereas in practice in houses of this class it is a vital factor, a small variation from the limit set being of serious importance to the prospective builder of a moderate cost house.

After consideration \$5.00 was agreed upon as a fair price

per square foot, though it was recognized as rather low for building in the immediate vicinity of the larger cities. This set a limit of 800 square feet to the allowable area. While this simplified the work of the judges in considering the 312 designs submitted, they were disappointed in the large number which were necessarily ruled out of competition; nevertheless it was felt that after this test the best designs remained for further consideration. The problem necessarily demanded great simplicity both in plan and elevation and its solution a careful discrimination as to what should and what should not be included in a house of this class. The conditions of the program made the plan of secondary consideration; their practicability and general arrangement were, however, steadily kept in mind.

First Prize.—A very able and charming design, with good details, a design which would be most interesting if executed. The plan is one of the best arranged and effective of those submitted.

Second Prize.—A very simple and characteristic brick design of the colonial type, which would depend for its effectiveness very largely on the texture of brick and method of laying. The cornice is unfortunately weak. The plan, however, is excellent and the design one, on the whole, which gives the greatest promise of being built within the appropriation.

Third Prize.—A simple, straightforward design, economical in plan and construction. While the second floor has been sacrificed by the method of roofing the gain in economy is justified by the results on the exterior. The second floor would be improved if there were but one room over the living room—three bedrooms being all that could reasonably be required in a house of this character.

Fourth Prize.—A design rather reminiscent of English work and one which would probably be even more interesting in execution than in the drawing.

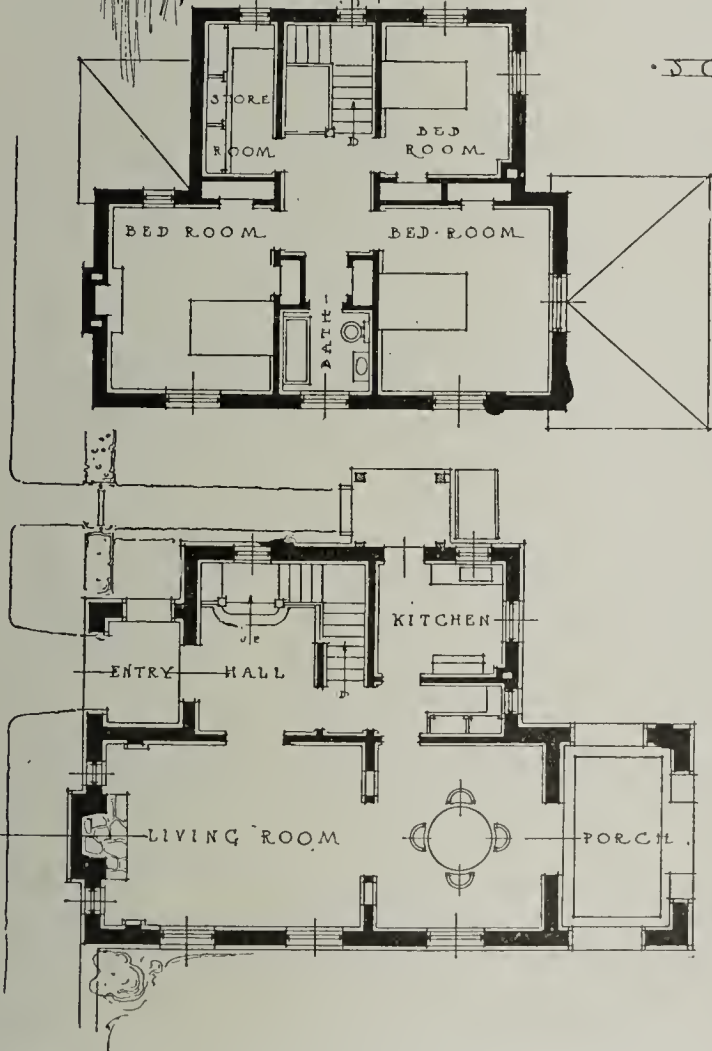
First Mention.—A good brick design, which is injured by the large scale of the openings in the stair bay, while the composition is hurt by the importance given to the entrance gate.

Second Mention.—An interesting and unusual plan. The garden elevation is the simpler and the better of the two given.

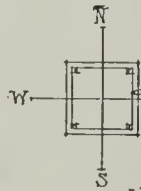
Third Mention.—A very interesting treatment, beautifully presented. The details are good, but would add materially to the cost of construction.

Fourth Mention.—A design which on account of its great simplicity is a good solution of the problem; one which would again depend largely for its effect on the kind of brick work and method of laying.

Fifth Mention.—This design was felt to be rather too much



SCALE OF PLANS



COMPETITION FOR A BRICK HOUSE
TO COST FOUR THOUSAND DOLLARS

First Prize Design in the \$4,000 Brick House Competition, Submitted by William Boyd, Jr., Pittsburg, Pa.
—Courtesy Brickbuilder.

broken up and lacking in the simplicity requisite for a house of this class, though interesting in its effect.

Sixth Mention.—This design is the most picturesque of all the designs considered. It is, however, hardly fitted to be carried out entirely in brick.

BENNO JANSSEN,
HOWARD K. JONES,
FREDERICK A. RUSSELL,
FRANK E. RUTAN,
ALBERT H. SPAHR,

Jury of Award.

The first prize winner was Wm. Boyd, Jr., of Pittsburg, Pa.; the second, Francis D. Bitman, of Boston, Mass.; third, Steward Wagner, New York City, and fourth, A. R. Nadel, Boston, Mass. We are pleased to publish the plans and designs of the first prize winner. The other three winners' plans and designs, together with those of the six receiving honorary mention, can be seen in the July issue of the Brickbuilder.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



CONDITIONS have been improving for the past week or so in the building business in this city, according to the report of the brick manufacturers; at least the demand is picking up a little all along the line, and there is even talk that a slight advance in the price of common brick may be expected at

no very distant date, if the improvement continues. The local factories are now largely taking care of the demands of the city, and shippers from the gas belt are not getting a very large proportion of the business; still shipments are arriving all the time, even though some of them are said to be made at a loss to the manufacturer.

There has also been a considerable improvement in the demand for brick in the surrounding territory, and this ought to be a big help to the Kansas gas belt plants, for they are in a good position to go after this business, and as some of them have shut down, owing to slack business, it will leave a larger percentage for the running plants. Building material dealers in the little towns have been stocking up, as the country building season is close at hand, and in fact a good deal of country demand is already reported; but it is not known what volume this business will attain as yet, for the drouth hurting the corn crop in the larger part of Missouri, Kansas and Oklahoma will undoubtedly have an effect upon the business this year.

Reports were coming in to the various country dealers of good jobs contemplated as soon as the farm work was out of the way, but many of these projects will not now be carried out, as farmers will wait until their crops are better. There have been good crops of all kinds in this territory to the present time, and practically the only big crop to still be harvested is corn, but it is so decidedly the big crop of this trade area that its failure, or even partial failure, seems to overshadow the success in other lines. To the present time the corn crop cannot be said to be a failure, but it is badly damaged, and will probably not make much over half a crop if the weather is right from this time forward, while a good rain the latter part of July would have doubled the yield now expected.

The farmers in the neighborhood of Fort Scott, Kan., are becoming interested in tiling, and there has been considerable tile laid out north of that city in the past year, and prospects are good for the laying of a great deal more of it, but shortage in the corn crop will probably cause a delay in this work.

The Kansas City Hydraulic Pressed Brick Company is enjoying a good run of business, and has been through the dull period, readily selling all the output of all their plants, in spite of the fact that it was estimated that the city consumption of brick had dropped off a third during that time. At the

present writing this company has all plants in full operation, all teams busy, and is in the market for some additional hired teams, but is finding them hard to get, probably owing to the fact that the working capacity of teams is so largely decreased in extremely hot weather, and teaming companies find that they must put on more teams to take care of the same volume of business, thus giving regular work to what would ordinarily be extra teams.

News reaches this city that the Weir City Brick Company, of Weir City, Kan., has gone into the hands of a receiver, and that the receiver is trying to make arrangements so he can operate the plant.

The Builders' Exchange has moved from its old location in the Scarritt building, where it has been located since the completion of that building three years ago, to 1015 Grand avenue.

The Eagle Building Supply Company reports its business double in July what it was in June, and says that prospects are very bright for fall business, in spite of the partial failure of the corn crop.

There is a very strong demand for paving brick in this section of the country at good prices, practically every plant making a good paving brick being forced to turn down orders. This seems to be the one kind of brick which does not require a salesman to dispose of it, plants making a good article having a demand strong enough to take up the supply without maintaining any sales force. Paving contractors are looking for brick which will stand the rattler and other tests, and people are demanding brick paving, so it is up to the factories to furnish an article which will fill the bill and it can be considered as already sold.

Face brick are plentiful in this market, and are selling at about the regular prices.

A. C. Baird, secretary and treasurer of the Kansas City Hydraulic Pressed Brick Company, but recently returned from a pleasure trip to the Texas coast of the Gulf of Mexico. He said that it was unusual for people to go south on a vacation trip at this season, but he found the weather fine down there, plenty cool enough to make it pleasant, and then there was the fishing. He did not get thoroughly into the fishing game, in spite of the fact that he went there for that purpose. He found that the kind of fishing he was acquainted with was different from the extremely scientific manner in which the fishermen of that section fish for tarpon in the gulf. He says that the best idea of the science used can be secured by understanding that they catch fish weighing around one hundred pounds on a line not larger around than the ordinary pin. He also volunteered the information that he could not land such a fish with anything less than a half-inch rope, but he has been inoculated with the fever, and intends to go back and finish learning the new game, where a man hooks a fish the size of himself with a line a little stouter than a hair, and then lands the fish by scientifically wearing it out in a fight or five or six hours. It does sound like a fascinating game. K. A. W.

Pottery Statistics of Germany.—A very interesting table shows the decrease of the pottery establishments in Germany in the last twenty-five years. In June, 1882, there were in existence in Germany 11,400 potteries, which employed 36,255 people. In June, 1907, there were only 4,074 potteries, with 31,733 employes. A comparison of these figures shows that the small potteries have disappeared, and that the larger potteries employ nearly the same number of employes as the small potteries did formerly. Of the whiteware potteries the same decrease is noticeable. In 1882 there were 116 establishments, while in 1907 there were only 90 potteries manufacturing whiteware. In number of employes, however, the increase was greater. The 116 potteries in 1882 employed 9,411 people, while the 90 potteries in 1907 employed over 10,000 people more—the exact total is 19,514.—Keramische Rundschau No. 18, 1910.



Bunzlau Ceramic School.—The new school year of this school will start early in September. The government has given the school its regular support. The total attendance of the school since its opening was 1,738 students.—*Keramische Rundschau* No. 20, 1910.

A Million Dollar Pottery Company.—The International China Clay Company, Ltd., was incorporated in London, with a capitalization of 200,000 pounds sterling. Originally the company was a French one, and owns the pottery of Frugier & Co. in Piwment. The company has four potteries, three in operation and one which is now building.—*Keramische Rundschau* No. 20, 1910.

National Manufactory at Sevres.—According to government information, the place as director of the Sevres factory, which has been open since the death of Director Voigt, will not be filled again. Professor Dr. A. Granger has been appointed director of the new established testing station of the factory, and will have charge of the technical end of the Sevres factory.—*Sprechsaal* No. 19, 1910.

In Memoriam—Professor Alexander Kips.—Professor Alexander Kips, who was formerly the artistic director of the Royal Prussian Porcelain Manufactory of Berlin, died in Friedenau-Berlin on May 6. He was fifty-one years old. He was the artistic director of the Royal Pottery for eighteen years, and it was through his efforts that the royal factory has obtained and maintained the foremost place among the potteries of the world.—*Sprechsaal* No. 19, 1910.

Foremen's Course at the Clayworking School at Hoeher.—The Prussian government has decided to help the clayworking school at Hoeher in connection with the foremen course, which is given free of charge by that school. The government will bear all the expenses. Dr. Berdel has charge of the course, and eleven foremen and superintendents will take part this year.—*Keramische Rundschau* No. 19, 1910.

The Engobe Application on Roofing Tiles.—Many a brick-maker, after a good demand for his brick, finds that the surplus of the summer production is not diminishing very fast, while he has several inquiries for roofing tiles. Usually he does not manufacture roofing tile, and cannot supply his customers. After many calculations and estimates, he decides to start the manufacturing of roofing tiles. He finds that his clay is suited for that class of material, but that the color is not the right red shade which is demanded for tiles. The next question is to find a good red clay which could be used as engobe for his tiles. In case he does not want to get the necessary information from some clayworking laboratory, he will have to conduct the experiments himself. The samples which he can obtain from reliable sources are mixed up with water and made into a thick slip. Pieces of the roofing tiles are dipped into the slip and dried for several hours. If after that time the slip adheres to the roofing tile without peeling, cracking or any other defect, the engobe clay is suitable for the roofing tile clay as far as the green state is concerned. The samples are then burnt, and the results will indicate which clay is the best. To determine the cost of the engobe, a quantity of slip, say five pounds, is weighed and used on the tiles, and the quantity of tiles are counted. From this data

the cost per 1,000 tiles can be figured. All the slip should be passed through a 40 or 60 mesh screen. The tiles should dry twenty-four hours after being engobed before being put into the kiln. The labor for engobe application figures about 90 to 95 pfennig (20 to 22 cents) per 1,000 tiles. Two men can apply engobe to about 5,000 roofing tiles in about ten hours.—*Tonind. Z. Z.* No. 58, 1910.

Kiln for Burning Fire Clay Ware.—Several different kinds of kilns can be used for the burning of fire clay ware. The choice of a kiln depends to a great extent on the quantity of material to be burnt. If a large quantity has to be burned, a gas chamber or gas round kiln should be used. When, however, only a small quantity is to be burned, two kilns built on the down-draft principle, and each holding between 60 and 70 tons of material, will give ample kiln capacity.—*Tonind. Z.* No. 55, 1910.

Molybdenum Colors.—Mr. Th. Hertwig-Mohrenbach has made experiment with molybdenum which has proven very successful. He has obtained an orange and black which will stand the high temperature of a porcelain kiln. He describes in his article the method which he employs to obtain the necessary results. The color is applied to biscuit ware in solution, which is then slightly burned to destroy the salt compound, and afterwards glazed and burned in the regular way.—*Keramische Rundschau* No. 21, 1910.

German Brick Syndicate.—A brick syndicate was formed last winter in Dortmund which embraces all the brick yards in Rhineland and Westphalia, and right from the start the brick market has been improved. The strong demand for brick came direct from the large cities. The syndicate sold in March 34,634,460 brick, against only 18,280,000 in February, and against nearly 26,000,000 in March last year. In the city of Essen 7,000,000 brick were sold more than a year ago. The stock of brick on hand April 1 was only 195,000,000 brick, as against 276,000,000 last year. The average price of the brick was between mark 16.22 and mark 25.57 per 1,000 brick at the kiln. As the syndicate has given good results, the movement is already now on foot to have the syndicate continued for another year, after the present arrangement expires.—*Deut. Topf. & Z. Z.* No. 36, 1910.

The Use of Quartz in the Fire Clay Industry.—Quartz is used for the manufacturing of dinas brick (silica brick) to a very large extent. It has been found from practical experience that not all quartz as found in nature is suitable for that purpose, and that a close examination as to the location of the deposit, the chemical analysis of the material and some physical tests are necessary to determine if the quartz is of the right quality to make silica brick. The ordinary requirement of quartz is that, after being exposed to a temperature of cone 35-36, it should still be dense, without being bloated or cracked. It should not show very great expansion after being burned. The chemical analysis should show not more than 95 and 96 per cent. of silica, with the remaining percentage of alumina and iron oxide. If all these requirements have been fulfilled, then the quartz is suitable for the silica brick manufacturing. Fred Wernicke and Dr. W. Wildschrey have made a very close study of the geological formation of the quartz deposits. They have found that there are only two localities in Germany where quartz is found suitable for this industry—in West Germany from Duren to Marburg, and in Lower Saxony near Halle. In Saxony the quartz exists mostly as large boulders, which are found in large quantities in the fields, while in West Germany the quartz has somewhat of a traceable formation. Silica brick are made from a mixture of ground quartz and lime in proportion of 98 to 2. These dinas bricks are mostly used for the erection of the Siemens-Martin furnaces of the iron and glass industry, and especially at such places in the furnace where the brickwork is exposed for weeks and sometimes months without interruption to the high heat of the furnace. These bricks are strictly acid brick, and therefore resist the action of the acid matts. One of the principal requirements of silica bricks is that they do not expand to any great extent at high temperatures.—*Tonind. Z.* No. 61, 1910.

Written for THE CLAY-WORKER.

A DAY WITH EISENHART.

Interesting Horseheads Plant Quickly Rebuilt After Fire
Now Running Full Force.

ONE OF THE NOTABLE BRICK manufacturing concerns in the State of New York is located at Horseheads, a pretty little town in the southern part of the State, not far distant from the Pennsylvania boundary line, being only a few miles northwest of Elmira, in Chemung county, and conveniently situated on the Erie, Lackawanna Valley and the Pennsylvania railroads.

The present name of the firm is The Consolidated Brick Company, which owns both the Elmira and the Horseheads plants. The chief stockholder in this company is Mr. R. G. Eisenhart, who is one of the best-known brickmakers in New York State, though he has been in the brick business but thirty years, starting the Horseheads plant in 1888. Since that time he has given his entire attention to the business and has been most successful and has made for himself an enviable reputation in the brickmaking world, holding at one time the high office of President of the National Brick Manufacturers' Association, and for many years closely identified with the work of the Association, being placed on many of the committees through his active interest in associational work and the promotion of all clay lines.

Last October the old plant, which had been in constant operation since its erection, was almost completely destroyed by fire. Luckily the plant was well insured, so that Mr. Eisenhart did not suffer any great financial loss from the disaster. Immediately after the fire work was begun on the reconstruction, and it was not long before a new and better plant of double the capacity of the original one was erected on the old site.

Mr. Eisenhart has a beautiful home on a large tract of ground adjoining the land surrounding the plant. He enjoys all the luxuries of life and possesses a happy and well-contented family, and though now far beyond his majority in the brick business, is comparatively a young man in spirits at least, and can generally be found most any week day in or about the plant, instructing his men and enjoying a life in overalls as only a thoroughly practical, successful brick man can.

It happened recently that the Clay-Worker scribe dropped off at Elmira and journeyed on to Horseheads to spend a few hours in the interesting plant. He found "Knickerbocker" Eisenhart, as he has often been called by his N. B. M. A. associates, on the job and rejoicing in the fact that the new plant was in perfect order for turning out 45,000 common brick daily. In fact, the plant had been in operation for only one week previous to the scribe's visit. He was shown over the new plant and is glad to tell the Clay-Worker readers of his short though pleasant visit.

As before mentioned, the plant has facilities now for turning out double its former output. The general run is on soft mud brick, though the plant is also completely equipped for making stiff-mud brick from shale. One hundred acres of rich shale and clay lands surround the plant proper. There is seemingly an inexhaustible supply of raw material, the surface clay averages 12 to 15 feet in depth and extends over the entire property. Near by is a bed of Devonian shale over 150 feet in thickness. The surface clay which is now being utilized is taken from the bank at the left of the rear of the plant by means of a Thew steam shovel.

One man is required to run the shovel, one to run the cars to and from the storage shed and one as helper. The large dipper of the steam shovel eats its way into the fifteen-foot face of clay, swings over and dumps three-quarters of a yard of well averaged material into a large side-dump car, and then swings back into place again at the bottom of the bank ready for another upward journey.

The dump cars hold six yards of clay each. Two cars

Snapshots Taken in and About



Steam Shovel at Work in Clay Bank.

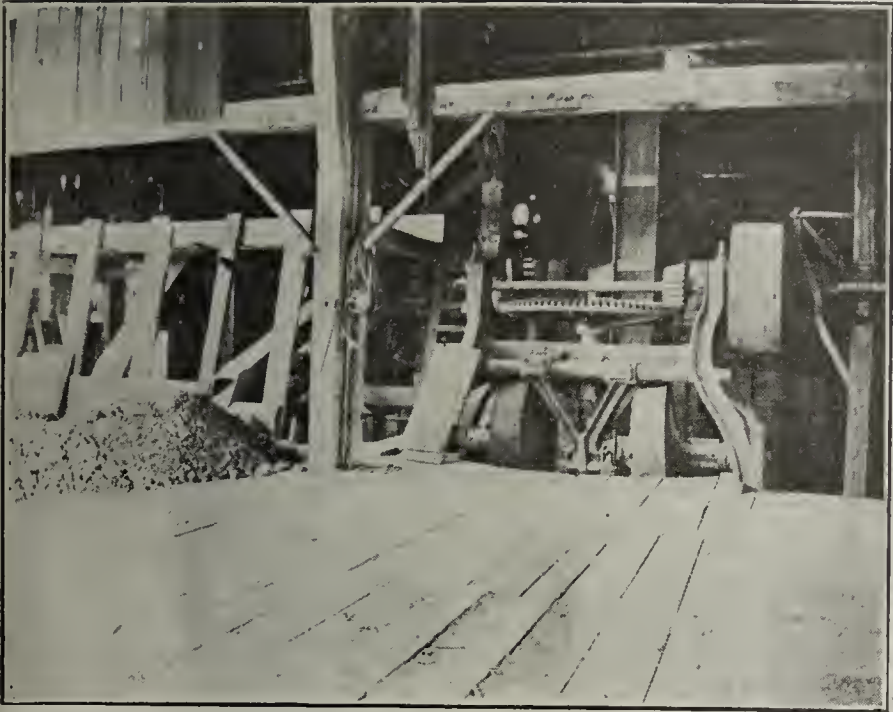


The Belt Conveyor in Storage Shed.



Delivery End of the Fireproof Dryer.

The Horseheads, N. Y., Plant.



Platform for Pulverizer and Dry Pans.



Glimpse of the Machinery Room.



Depressed Track Extending Past the Haigh Kiln.

coupled together are loaded while two empties are being brought back. The cars are conveyed to the storage shed at the plant by means of a locomotive running on standard-gauge tracks. The storage shed is an immense structure with sufficient capacity for running the plant an entire year. It is 30 feet high, 220 feet long and 150 feet wide, being located about 200 feet to the rear of the plant proper.

The locomotive pulls the cars of clay into the shed close to a large hopper, into which the clay is dumped. Clay sufficient to make 100,000 brick can be stored daily. From the hopper the clay is dumped onto a chain elevator and conveyor. The clay is carried to the top of the storage shed and dropped. When the storage space beneath the conveyor is filled, a horizontal belt conveyor is employed for carrying the clay farther on. The clay is allowed to weather here for almost a year, and, being stored in this manner, allows for a fair amount of drying out and distribution of moisture and gives a well averaged material. Some lime pebbles are found in the clay, so that fine grinding and screening is absolutely necessary.

The weathered clay is carted in a one-horse cart to the grinding room and thrown into a Williams patented pulverizer, from which the ground clay drops into bucket elevators and is carried to screens above. The clay and stones are separated by this system of screening, which puts the clay in practically the same condition as clay for dry press brick, being free from lumps or pebbles. When asked if he did not think a belt conveying system for carrying the stored clay from shed to pulverizer would be an economical arrangement, Mr. Eisenhart declared, in his usual forceful way, that the cheapest thing about a brick plant, according to his idea, was a horse and cart. The fact that a horse and cart will take the clay any place it is desired without any irregularity and at less expense than belting and machinery, which is apt to give trouble in its operation, the conveying troughs getting clogged at times, or beltings wearing out, is his reason for not adopting the new method. He says he had a belt conveyor system in mind for some time, but after studying the matter carefully and hearing of the troubles of other brickmakers with their conveying systems, he decided that the good old reliable horse and cart was the thing for his plant.

When running on the wire-cut brick, which is not very often, the shale is used, being blasted from the bank and hauled to the two large dry pans. The Elmira plant makes shale brick, so that the Horseheads plant confines its work to the production of the soft-mud brick, except when the demand is so great for shale brick that the Elmira plant cannot fill its orders.

The screened clay runs into a Richardson automatic feeder, which is so arranged that the clay runs into the feeder by gravity and all the surplus clay the feeder cannot take will run down into a bin below at the bottom of the elevator. This surplus clay can easily be handled from bin to pug mill, so that at times by using it the plant can run for half a day without pulverizing.

From the feeder the clay drops directly into a Martin 16-ft. pug mill and from there by gravity into a Martin six-mold brick machine. A Buck sander is used. The brick are placed in steel-rack cars holding 360 brick each. Two hundred dryer cars are in use and are placed in turn in an 18-tunnel absolutely fire-proof dryer. Not an inch of wood was used in its construction.

The brick are dried by means of a waste heat drying system, 45,000 brick being taken from the dryer daily and set in the large 32-chamber Haigh continuous kiln, which has proven thoroughly satisfactory ever since it was erected, twelve years ago. Each chamber is 14 by 12 feet in dimensions and holds 30,000 brick. Slack coal is used for top firing, while lump is used for the side firing.

A depressed brick walled track runs along one side of the kiln, where the cars are conveniently loaded with brick, and the slack coal is emptied from car to elevated coal bins. A three-

step stair leads down into each bin from the top of the kiln, so that the top burner can get the slack coal easily and feed the holes with his small shovel as needed.

The power of the plant is furnished by means of a 250-horsepower compound engine and a battery of three boilers, two of which are in use, while the third is in the process of cleaning.

The Horseheads plant turns out an excellent soft mud brick, which finds a ready market. Mr. Eisenhart enjoys entertaining visiting clayworkers and extends at all times a cordial invitation to all interested persons to inspect his plants.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



REPORTS GIVEN OUT by the building inspector of Milwaukee fail to coincide with some of the statements recently made by local brick dealers in regard to the amount of building which has been done in the city during the past six months. During this period of time building activities have decreased more than \$1,000,000 as compared with a similar period of 1909, while the month of June alone shows a decrease of nearly \$400,000. The number of permits that has been issued, however, compared favorably with that of last year, but a great number of them have been for small flat buildings in which but little brick has been used.

Conditions directly opposite are found throughout the State, where many manufacturing buildings, warehouses and the like are being erected. Paving activities in the smaller cities call for a large amount of brick, as this material is the most popular for business streets where traffic is heavy, and in a majority of cases it is the business streets which are being paved.

As a result of the rigid inspections which are now made of factories by the insurance companies before taking them as risks, brick is replacing lumber in the construction of these buildings, and the owners are receiving the benefit through lower insurance rates. This condition of affairs is at present more noticeable in the smaller cities, where the underwriters and fire wardens are carrying on investigations with the idea of lessening the fire waste.

At a recent meeting of the committee on streets and alleys of the Milwaukee city council a resolution was introduced to instruct the commissioner of public works to investigate and find the cause for the sinking of several sections of pavements in the Fourth ward. This matter has been the cause of much discussion, and the blame has been placed on the shoulders of the paving contractors. Of late a different view has been taken of the matter, and it is said that the fault lies with the underground tunnels which are used for heating pipes, and which have not been properly constructed.

T. J. Skjelbred, of Rice Lake, Wis., who recently took charge of the Washburn (Wis.) Brick Company, has remodeled the plant, which has been placed in operation.

After several meetings the city council of Superior, Wis., has finally concluded to use brick as the material for paving John avenue. Different opinions held by the property holders on the avenue as to the wearing quality of the various materials were the cause of many discussions and debates, with the result that brick was selected with a vote that was practically unanimous.

J. R. Bloom, deputy state factory inspector of Wisconsin, after an inspection of the plant of the Shawano Brick Yards, highly complimented the management, not only upon the condition of their buildings and equipment, but upon the high quality of brick which they are producing.

The Wisconsin Composite Brick Company, of Milwaukee, which has until recently confined its operations to the manu-

facture of a gray colored sand brick, is now turning out brick in all shades of red. This has been made possible through the discovery of a red sandstone quarry near Madison, the sand from which is shipped to Milwaukee, where it is mixed with the ordinary Lake Michigan sand, producing brick to suit the tastes of the different purchasers.

During the past few weeks the price of brick in Milwaukee has advanced \$1 per thousand.

Eighth avenue, one of Milwaukee's important South Side thoroughfares, is to be paved with brick from Kinnickinnic avenue to Windlake avenue. This is only one of the many streets of the city which are to be paved, but brick is not to be used in all cases. However, where there is extremely heavy traffic brick has proven to be the best wearing surface, and the committee having charge of this work made the choice for the Eighth avenue pavement on this account.

All of the brick yards at Racine, Wis., have been taking advantage of the warm, dry weather, and have turned out an unusually large quantity of brick. Building operations in that city have been booming, especially in the manufacturing line, and the brick companies find a ready market for their product.

The Langenberg Brick Manufacturing Company, of Stevens Point, Wis., has been awarded the contract to furnish 1,500,000



Loading a Car of Brick at Horseheads Plant.

brick to be used in the construction of the new Wood county insane asylum at Marshfield, Wis.

H. C. Stanchfield, who has been awarded the contract for laying a large quantity of brick pavement at Jefferson, Wis., has commenced operations in that city. With a large force of men employed, he expects to complete the work within a comparatively short time.

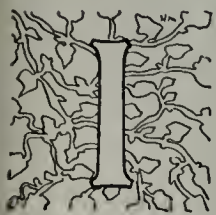
The experiment station which is being maintained by the State University near Ashland, Wis., is making tests of the soil in that section that may prove valuable to the land owners. It is hoped that a large deposit of clay which has been found can be used in the manufacture of tile, and experiments are now being carried on with this end in view. The soil is also suitable for brick manufacture. A. BADGER.

The news reports say that there are not so many people going abroad this year as usual, but instead they are spending their time at the interior summer resorts. This might indicate that people are too busy to go abroad, but we have confidential information to the effect that it is because business is dull and money is scarce, under which conditions the home product in the way of the summer resting place looks much better than usual.

Written for THE CLAY-WORKER.

THE SMALL BRICK PLANT—ITS ADVANTAGES AND DISADVANTAGES COMPARED WITH LARGE CAPACITY PLANTS.

By Anton Vogt, of Fort Smith, Ark.



IN STARTING a brick plant there are many things to be considered:

First—Is the clay adapted to the particular kind of brick that you wish to make? Is the clay safe in drying and burning?

Second—Have you a good market for the manufactured products, and is there not too much competition?

Third—Can fuel be purchased at a price that will enable you to meet competition?

Fourth—Can the plant be located near enough a railroad to have a switch, or will the brick have to be hauled on wagons?

Fifth—How can you get water for steam and tempering the clay?

Sixth—What kind of labor can you get, and at what price?



"Knickerbocker" Eisenhart on His Favorite Mount.

Seventh—Are shipping facilities good? Are freight rates reasonable, and can you get cars when needed?

Having ascertained all these different things, one can easily figure how much the brick will cost and for how much they will sell. The difference between the cost and the selling price is the profit. We know before we start how much profit we can make per 1,000 brick, and many are tempted to start a plant on a large scale. That is human nature. They figure that if they make three dollars per thousand, or sixty dollars profit on twenty thousand brick, that they will make three hundred dollars profit on one hundred thousand brick per day. Think of it! Three hundred dollars per day! This figures out all right on paper, but, as a large majority of you know, it seldom works out this way.

In starting a brick plant we must not count our chickens until they are hatched. In other words, we must not figure the profits until the bricks are sold. Like a baby, we must learn to creep before we can walk. In ascending a high ladder, one would not try on a run to jump at once to the top, but any one with common sense would start at the bottom and go up step by step. Then, too, one must be careful not to go too fast, lest he slip, fall down, thereby crippling himself for life, or, perhaps, breaking his neck. The same rule holds true in starting a brick plant: Go slow, reaching the top of

the ladder of success step by step. "The tallest oak from an acorn has grown."

Many a victim of the "brick fever," who in his mind's eye has bought Florida orange groves with his profits, has slipped, fallen down, crippled himself for life; and often has broken, not his neck, but his bank account and his heart.

The best clay or shale bank, improperly handled, can weaken or ruin the strongest state or national bank if said institutions are backing a mismanaged plant which has been started on too large a scale and, in the hope of future success, runs at a continuous loss, like investing in a lottery that has no winning numbers. These banks, hoping to eventually recoup their losses, continue to advance money, but finally realize that a crash cannot be avoided.

Therefore, I say it is better to start right by paying a few hundred dollars to a competent engineer to start us right than to lose thousands of dollars before we find out that we are wrong.

Friends, my advice is: Go slow; feel your way; take everything into consideration. Have your clay tested, not only in one place, but in several. Look into market conditions; ascertain the price of fuel and labor. Consider shipping facilities, freight rates, and chance of obtaining cars when needed. Then, no matter how much money you may have, be careful. In order to be successful, capital must be aided by experience. If you have not learned under this best and most expensive of teachers, hire some one who has. Be sure to obtain some one who has acquired their knowledge of making and burning brick through long years of diligent study and hard practical work. Let him lay out your plant. Buy the right kind of machinery; provide sufficient room and power to install additional machinery when necessary. If you so desire, you can at the start purchase machinery of a large capacity and run it to the capacity of your dryer, whether it be artificial or natural. Build one kiln, whether it be an old-fashioned up-draft or a modern down-draft kiln, letting the results of this kiln guide us in the erection of others.

Don't hire a man that knows it all, one who claims to have graduated from the school of experience. This school has no graduates. All of us can learn more each day, and a man's lifetime is too short for him to learn to solve all the puzzles with which tricky Mother Nature has endowed the clay industry.

I know of sewer pipe plants that have started with a capacity of two kilns per day. The material would vitrify to a beautiful body, but, on account of excess of fluxes and lack of silica, it would not glaze. So, in spite of a good market, the manufacture of the pipe had to be abandoned. In this instance a small plant would have been of great advantage. Even the precaution of shipping a carload of clay to another plant to have been made into pipe would have saved many thousand dollars. Before building a plant, this is the only reliable way to test material, and why such tests are not made is more than I can understand. It makes no difference what prominent or skilled chemist has tested your clay, or what brick machinery company has made test brick of your clay. Such tests in the shape of a chemical analysis or a few brick I do not consider absolutely reliable, for these reasons:

First—No two clays composed of the same ingredients will behave in the same manner in tempering, molding or pressing, drying and burning the brick.

Second—I have never seen a whole kiln of bricks produced that were as perfect and beautiful as a few brick made by a machinery company for a special test. Such brick are of a good color, with sharp edges, show no setting or fire marks, because these sample brick are generally put one brick high to prevent fire marks in saggars which are really fire clay boxes with a cover on them. This keeps out the kiln gases, flame and smoke, which discolors so many brick when a kiln full is set and burned. The brick burned in saggars are pronounced beautiful by all who see them. I have seen such brick that are now silent ornaments in the possession of disappointed ex-brickmakers. These men, after having gazed upon such beautiful sample brick with admiration and the happiness of a schoolboy in vacation, became infected with the "brick fever." During the day they figured on the immense profits they would make; during the night they dreamed of

the trips around the world that they would make in the near future. Companies were organized; in many instances cheap second-hand machinery bought; a threshing engine furnished the insufficient power; no pulverizer, disintegrator or dry pan; no screens or other apparatus was employed to prepare the clay before entering the pug mill. Four crude walls of green unburned brick formed the walls of the first kiln, and an inexperienced burner was engaged to burn that first kiln. A cheap man, who said that he could burn brick, was entrusted with the most important part of the brick business—the burning.

When the kiln was opened there was not one brick to be found in the whole kiln of perhaps three hundred thousand that looked like those beautiful samples! With the hope of doing better next time, these victims of the fever tried again and again, but that better next time never came.

My friends, the country is full of such white elephants, surpassing in number any aggregation of white and mouse-colored elephants that ever trotted in all the circus parades on American soil.

There are arguments in favor of the small plant:

First—We can experiment with our clay to find out just what we can do. If the clay should turn out to be a risky proposition, we could stop to hunt for a better material. Perhaps we could find nearby a clay that would do to mix with our risky or unsuitable clay, and we would not be out so much money as we would have been if we had started on a large scale.

Large capacity, large profits; small capacity, small profits, if everything goes well. But, on the other hand, large capacity, large losses; small capacity, small losses, if everything goes wrong. It's just as it is with children—small children, small sorrows; big children, big sorrows.

So, in order to avoid big loss and sorrow, the proper thing to do is to start a small plant, and when we are sure that we are right, then go ahead. Add more machinery of larger capacity; build more tunnels to our dryer; construct substantial kilns; hire a competent man to make the brick, one who can keep the machinery going. Engage an experienced burner, one who has good judgment about heat, and one who is sober, and as proud of the fruit of his labor—a kiln of good brick—as a painter is of the work of his brush—a beautiful picture.

Second—If a man has the necessary experience, he can start with a small capital, gradually increasing the capacity of the plant as the demand for brick increases; while, if he starts on a large scale, he would have to form a stock company and sell shares. Naturally, those with the most money would buy controlling stock, and, as we well know, the American people, in fact the whole world, is after the almighty dollar, and those with a controlling interest would in due time freeze out the small stockholder. In other words, the big fish would eat up the small fish.

Listen: Many of you think right now that nobody would do anything like that. My friends, you cannot trust your own flesh and blood. Human nature, weakness, or rather meanness, leads one to take advantage of another. Of course, there are many noble exceptions; but you know that Judas, a former friend of Christ, betrayed him for thirty pieces of silver. This betraying is done every day for the sake of a little money, not only in the brick business, but in all lines of business; and nowadays such betrayers are called shrewd, clever men—captains of industry.

Third—In an inland town off a railroad, where there is a local demand for brick for perhaps a schoolhouse, a church, or one or two stores, and for foundations and pillars under frame houses, a small brick plant would be justified. Under such conditions a large plant would be a losing venture, and it goes without saying that no one would think of investing a great amount of money in a large capacity plant unless the prospects were favorable for a railroad being constructed in that locality, thereby affording an open market. Even then a small capacity plant would be preferable and safer until conditions had developed to a point that would justify a larger plant.

I can suggest no further advantages in a small capacity plant, but will mention again that important advantage, the opportunity of testing the clay, and if it does not meet expecta-

tions one can console himself that he did not start a large plant, and be thankful that he escaped the ordeal of being ruined financially. Even if one loses a few hundred dollars in a small plant, he has a chance to make it back in another locality where better clay is to be had. After one unfortunate experience, although the loser will be a little poorer, he will also be a little older, a little wiser, and the lesson learned will prove a great benefit to him.

We will now discuss the disadvantages of the small capacity plant compared with the large capacity plant.

Where we have at hand sufficient capital, figuring from fifteen hundred to two thousand dollars per thousand brick for buildings, equipment and up-to-date kilns—kilns that are suited to the kind of ware to be made and to the capacity of the plant; where we have tested our clay and made several thousand brick, set them and burned them in a neighboring plant by the same process and under the same conditions that we would have at our own; if these turn out well, and we have a market that will consume the output of the plant; if the price and quality of the fuel and the price and quality of labor would insure a fair profit; if shipping facilities are good, reasonable freight rates obtainable and cars plentiful; if a competent engineer has constructed the plant; if experienced men have charge of the machinery department, the making and the burning of the brick—then, and then only, can one hope to be successful in establishing a large capacity plant making from one to two hundred thousand brick per day. Under such favorable conditions one would run no risk in investing money, and it would be a disadvantage to build a small plant. In so doing much valuable time would be wasted, and perhaps some far-seeing brickmaker would get ahead of us and make it impossible for us to increase our capacity, unless there was an unlimited demand for clay products of all kinds. If one plant was already supplying the market for building brick, we could turn our attention to manufacturing something else—paving brick, face brick or tile. If one wanted to be absolutely sure of success, and preferred to start in a small way, he could have his plant laid out, leaving plenty of room for the installation of additional machinery for doubling, tripling or quadrupling the capacity of the plant. But he would be wise to provide sufficient power from the start. After having installed his additional machinery, the small capacity machinery could be used to make a special grade of brick, roofing tile or drain tile, or something that would find a ready market and practically be a non-competitive article.

In conclusion, I wish to repeat what I have said before: Go slow; be sure that you are right, then go ahead, on a small or a large scale, as existing conditions may justify.

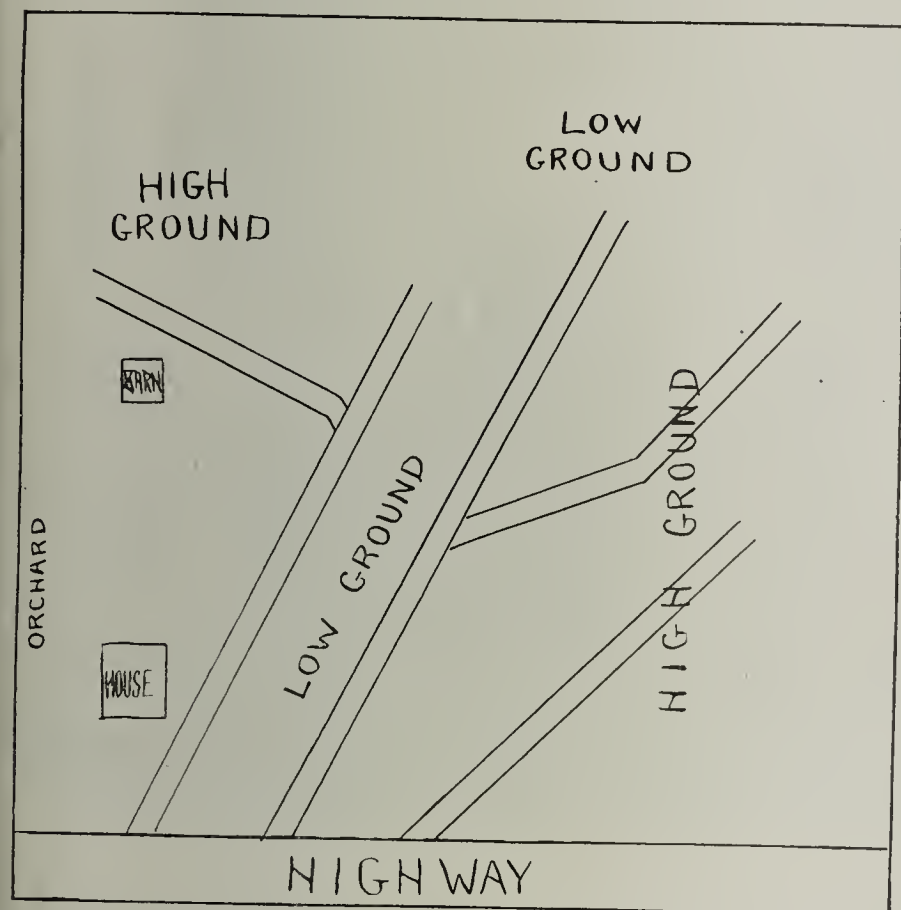
A BUSINESS EYE.

It is said that no one but a rich man can afford to farm wet land, and it is only a question of time and size of his bank account as to how long he can do it. If I were going in debt for a farm, and expected to make the money off of the farm to pay for it, I would rather give two dollars to one for a farm well tile drained than one not. On a farm that has been well drained I can with certainty grow good crops every season, and I can plan my business so as to make double the money that I could on a farm not well drained, for the reason that I would be dependent upon the weather, and the seasons are uncertain. Sometimes we can plow, and then we cannot plow and cultivate wet land. The drained land is in every way to be preferred, especially where the crop yield is certainly increased 30 or 40 per cent. My advice to any one who has had the misfortune to become the owner of a wet farm is that it is better to mortgage the land for money enough to thoroughly tile drain it. If he sits down and waits for it to dry up, and persists in doing so, he will surely die a poor man. If there is already a mortgage on the farm, the quickest and best way to get rid of it is to tile it off. There is no man so down at the heel but what, with a little energy, he can get a few tile and make a beginning, and, like the leaven hid in the meal, sooner than you think it will all be drained. When days are being spent for the land to dry up, it is a good time to drain and help the wet, sodden earth to open up and dry out, and when once helped in this way, it will not need such help again, and the owner will not need to wait for it to dry out.



POLAND'S FORTY ACRES.

Quite recently we visited a forty-acre farm advertised for sale, and as an additional reason why the farm should sell for \$130 per acre it was advertised as being thoroughly tile drained and all black land. The land was mostly a deep black soil, an excellent piece of land, and if well under or tile drained the soil would be wonderfully productive. But the drainage already done, though helping very much in the way of making the cultivation possible, is in fact not a good beginning in the thorough drainage of the forty acres, for the reason that no well-defined system is outlined. The owner



The Incorrect Way of Tile Draining a Forty-Acre Tract.

knows about where the ditches run, and they do good work as far as they go. The tile are larger than necessary in two or three of the ditches—said to be six and eight-inch, much larger than necessary, especially so the ditches being so closely bunched together. After looking the ground over, we suggest the following system of draining the forty acres in question:

The low ground runs diagonally across the forty acres, rising about two feet near the center of the tract, which would make it necessary to dig the main drain so much deeper. The main drain from B to A should have a regular fall from the head to the outlet, and the lateral drains should enter main drain at an acute angle.

The system of drainage here outlined would serve to sufficiently drain the forty acres, taking into account the lay of the land, and every rod of the land would be affected for the betterment of the land.

With the present drainage, when heavy rainfalls come it requires time to relieve the land of the accumulated surface water, to say nothing of the under or soil water.

The owner of the land is an old settler, and began the

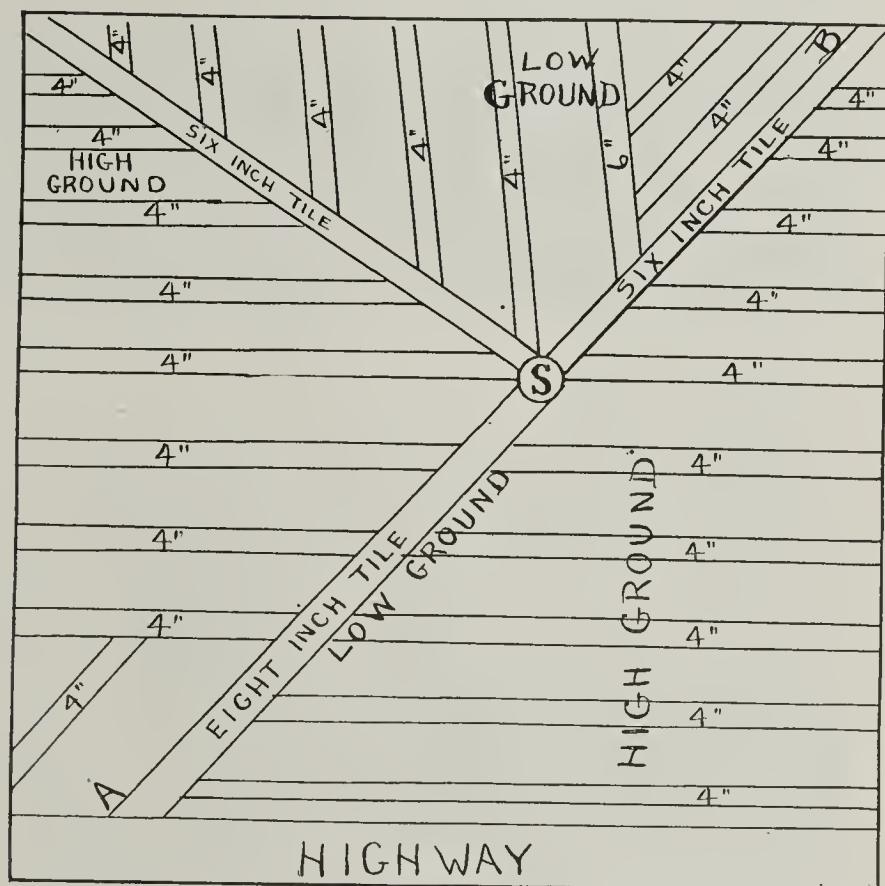
work of drainage in the lowest places, without any well-defined idea as to the future of the work or as to what might be accomplished by more thorough work. However, he is entitled to credit for what he has done. The land, if well underdrained and well cultivated, would produce bumper crops.

In the bygone years much of the forty acres was under water in the spring and summer, but since being cleared of the heavy timber and partially drained it is claimed that it sometimes produces 100 bushels of corn per acre, and we do not question the truth of the statement, and if well underdrained the yield would be much increased.

But what we have said of this forty acres and its probable productiveness might be said of thousands of forty-acre tracts in the great corn belt—thorough work in drainage will discover much land in the Mississippi valley that will produce bumper crops.

DRAINAGE AND FANCY FARMING.

Horace Greeley years ago wrote much about the benefits of underdrainage, but many of his readers laughed about it—said it was one of the luxuries indulged in by a fancy farmer. They were wont to say that Greeley's cabbage cost fifty cents



The Correct Method of Laying Tile for Drainage.

a head to grow them, and there were many other exaggerated statements of his fancy farming. But time has shown conclusively that Greeley did not overdo the work of drainage—in fact, he did not fully outline the benefits. He wrote well and did much good in advancing the work by educating the general public and impressing upon the minds of his thousands of readers the importance of underdraining farm lands that are otherwise too wet for profitable cultivation.

It is thought by many who have not tested the value of tile drainage that it is one of those luxuries boomed by so-called fancy farmers. That drainage belongs to and is largely practiced by this class of farmers is a mistaken notion. There are thousands of thrifty, money-making farmers that would, if called on for their experience, testify that tile draining lands that need to be tile drained is the corner-stone of successful farming.

In order to emphasize these statements, we will give a few practical examples that have been published before, but have not lost their value as examples of success in this important work.

George P. Robertson had one ten-acre field that failed to

produce anything except a few small ears of corn before being drained. After draining it he cropped it eight years successively, and has time and again paid for husking 100 bushels of corn per acre.

Mr. Losee, Norwich, Canada, says that as a matter of actual test his underdrained land yields one-third larger crops than does the land not tile drained, although the same treatment in other respects is applied, and the land is of the same character throughout. The average wheat yield of his undrained land is twenty bushels per acre, while the tile drained land yields an average of thirty bushels. As the cost of draining on his farm is estimated at \$20 per acre, this preparation of the soil pays for itself in two years.

Horton Furgeson, of Indiana, writes: "The swamp contained twenty-seven acres, and was regarded by all the neighbors as worthless, except for hunting grounds. I had great faith in drainage, and determined to undertake the reclaiming of it, confident that it would prove a good investment. I tile drained and grubbed it, paying customary rates for the labor

years to come, without additional cost. In short, thorough underdrainage is a permanent improvement that will give a satisfactory income for generations to come.

A NEW INDUSTRIAL LOCOMOTIVE.

Hall-Fate-Drennan Method an Innovation in Hauling Clay from Bank to Plant.

THE "H. F. D." REPRESENTS a new departure in industrial locomotives, and the versatile uses to which it can be put in the industrial field are practically unlimited, due to the great flexibility of action of this type of locomotive. The power is derived from a 50 h. p. 4-cylinder motor, of the 4-cycle type, built especially for this specific purpose by the Waukesha (Wis.) Motor Co., whose experience in this line is sufficient guarantee of the quality and reliability of the motor.

The feature that appeals to all who have seen this locomotive work, is the ease with which it starts a string of 16 to 30 industrial cars. This is accomplished through the introduction of the Plymouth double variable speed transmission, so well known on Plymouth commercial power trucks; and being specially designed for the "H. F. D." locomotive, has



"H. F. D." Locomotive Hauling Fourteen Loaded Cars.



Dredge Filling Cars at Farmer's Farm.



Model No. 14 "H. F. D." Locomotive.

proven to be the best type for transmitting the power from the motor to the drivers, giving, as it does, a large range of variable reductions from the motor to the drivers; for example, in starting, the motor will revolve 24 turns to 1 of the drivers and after the train is under motion may be changed at will to a reduction of 18 to 1, or 10 to 1, and so on to the fastest speed, being a reduction of about 3 to 1. This flexibility of reduction is at the driver's command on both the forward and reverse alike, and it is very apparent that this is a distinct advantage over other types having a fixed reduction, or only a slow and high speed with a slow reverse.

Another valuable feature is the total absence of gears and clutch, with their necessary complication, the transmission consisting mainly of two driving discs of a special composition and two driven friction wheels. These latter have detachable wearing surfaces and can be replaced when worn, at a nominal expense of \$12.00, and are easily placed on by the operator with the aid of a monkey wrench. One set usually lasts from six months to a year.

The two friction wheels operate on independent shafts and are moved radially toward or from each other across the face of the discs to change the reduction, both discs being placed on one shaft operated through a flexible coupling of improved and very simple design, which allows a free movement of this disc shaft longitudinally of the same, whereby

and tile, and the year following planted it in corn, with the following result:

	"Dr.	Cr.
"Tile used for 27 acres.....	\$544.87	
"Paid for ditching.....	88.00	
"Paid for clearing and grubbing.....	275.00	
"Total expense.....	\$907.87	
"By 2,530 bu. corn at 50c per bu.....		\$1,265.00
"Net profit, \$357.13.		

"Next season, if favorable, I expect a larger yield."

Every farmer knows that, in these times of easy transportation, profits do not depend upon the price that products bring in the market as upon the quantity to be disposed of. Or, in other words, abundant crops are the farmer's source of income.

Of all the improvements put upon farms containing wet lands valued at \$40 per acre or more, drainage pays the largest profit for the outlay. Besides, the profits go on for the many

they can bring one disc to bear on one side of both the friction wheels at the one time for the forward speed. A reverse action brings the other disc to bear on the back of the friction wheels giving them a movement in the opposite direction reversing the direction of the locomotive, both discs being on the same shaft and operated by one hand lever—a movement of said lever forward, giving the forward speed and a movement back giving the reverse. Thus it may be seen that it is impossible to have both the forward and reverse on at the same time and further producing a natural and exceedingly simple control, a very necessary adjunct to an industrial locomotive.

In a recent test one of the "H. F. D." locomotives of the lightest type, weighing about 5,000 lbs., started a train of 48 industrial cars of one and a half yards capacity—10 of them being loaded with peat and the balance empty—and pushed the entire train around a perfect horseshoe bend, the front end coming back and passing the locomotive before it had reached the curve. This was done with the locomotive belonging to the Farmers' Farm Co., Plymouth, O., illustrated in this article.

The "H. F. D." locomotive is built for hard service, all

Written for THE CLAY-WORKER.

SOUTHERN BRICK NOTES.

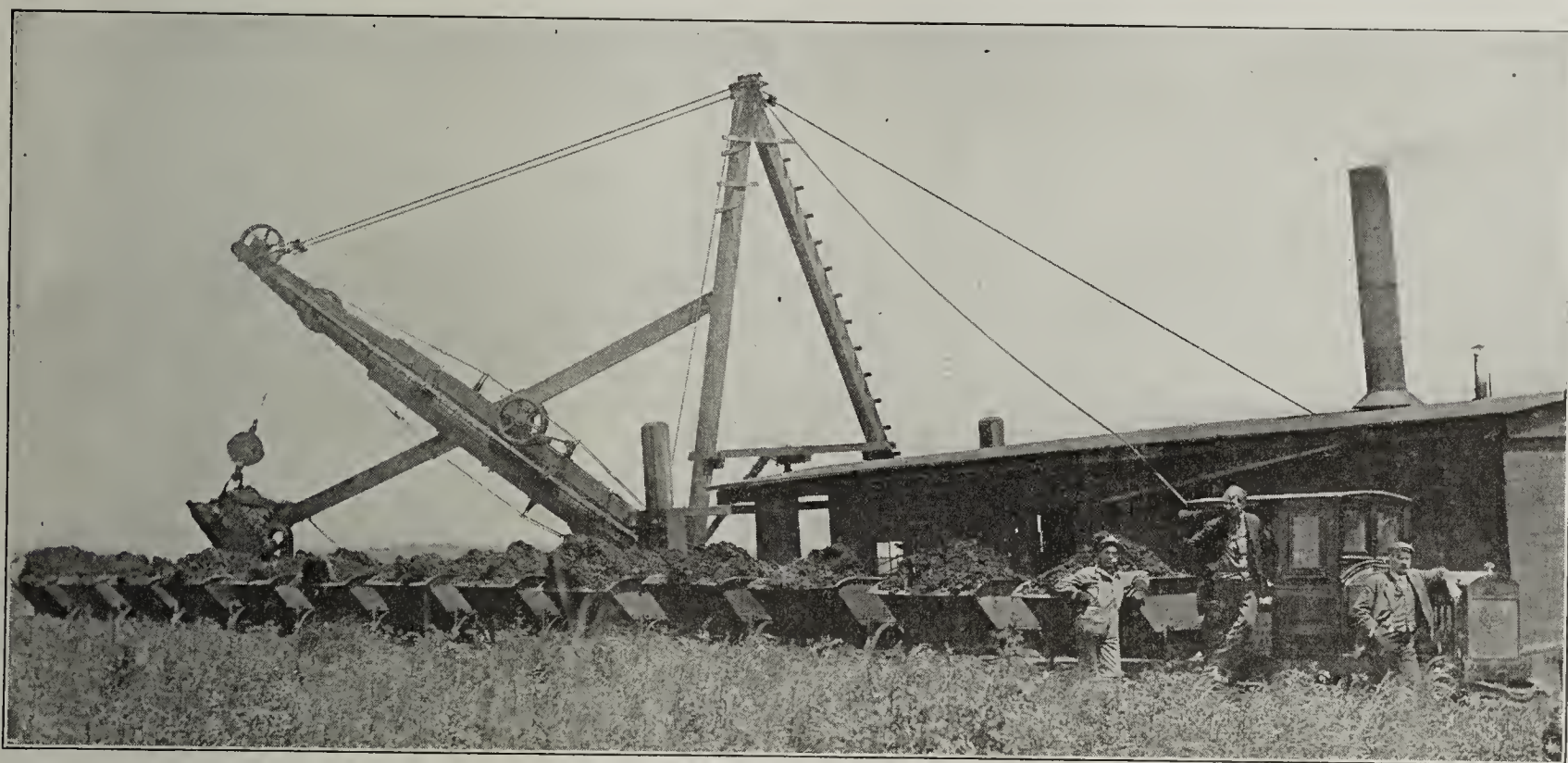


BUILDING RECORDS at Memphis, Nashville, Chattanooga and other Southern centers are being well maintained now. During the first half of 1910 Memphis stands fourth among forty-six leading cities of the country in point of building activity, and shows a gain of 85 per cent. over last year. Other Southern cities in line with satisfactory increases are Birmingham, 69 per cent.; Baltimore, 39 per cent.; Louisville, 31 per cent.; Dallas, 20 per cent.; New Orleans, 19 per cent.; Richmond, 27 per cent.; Chattanooga, 11 per cent.; Mobile, 2 per cent.; the exception being San Antonio, with a decrease of 3 per cent.

The various brick concerns at leading centers in Tennessee are busy with orders.

The Fulcher Brick Company, of Nashville, has the contract for the construction of five two-story brick stores at Portland, Tenn.

Contractor James H. Yeaman, of Nashville, has been



Hall-Fate-Drennan Locomotive at the Loading Dredge.

bearings being roller except the motor bearings, which are of the best white brass and very large. The drive-wheel journals are heavy roller self-lubricating, the motor self-oiling from large reservoir, and lubricant forced by a positive gear-driven pump direct to all bearings, besides having the usual splash oiling system in crank case. All locomotives are furnished complete with sand boxes, very powerful brakes on all four drives, couplers to suit purchasers' requirements, driver's cab with full set of side and back curtains, tools, etc.; and are made for various width track. The one illustrated is 24-in. gage with 18-in. drivers.

The introduction of a locomotive of this type around clay-working plants, in many sections now using horses, would mean a great saving in time and expense in moving material from and to many points about the plant, as well as hauling clay and shale from the mines or quarries.

The fact that this locomotive was designed by A. W. Hall, an engineer having many years of practical experience, and marketed by the J. D. Fate Co., Plymouth, O.; should leave no doubt in the minds of our readers as to its efficiency and practicability. Further information will be gladly furnished by the J. D. Fate Co., Plymouth, Richland county, Ohio, upon application.

awarded the contract for the construction of a \$25,000 dormitory to be erected for the seminary at Boaz, Ala. The building will be of brick and stone construction and three stories in height.

The contract for the Woman's Hospital Annex at the Davidson County Asylum has been awarded at Nashville, the cost of the structure to be \$14,200. The plans were prepared by Architects Asmus & Norton, of Nashville. The brick work will be done by J. H. Hutchison & Sons.

Final plans have been prepared for the construction of the new police and fire headquarters at Memphis. The building will be two stories high of brick and very commodious.

Porter & Johnson, of Paris, Tenn., are mining clay on an extensive scale at Henry Station, Tenn., near Paris, and shipping the same East.

The long-looked-for permit for the new union station at Memphis has been issued to Murch Brothers Construction Company. The permit provides for the erection of a three-story building of brick and stone, concrete foundation and tile and concrete roof, the cost to be \$600,000.

Costen, Moore & Co., brick manufacturers and contractors at McKenzie, Tenn., are building a large three-story brick storehouse for Wrinkle, Moore & Co. at that place, and fur-

nishing the material to the extent of several hundred thousand brick. They are also doing the work and furnishing the brick on a two-story building for the Citizens' State Bank of McKenzie, Tenn.

C. Sparks, at McKenzie, Tenn., is conducting a pottery, turning out jugs, jars, etc., and has just started a large burning.

At Kingsport, Tenn., F. E. Mahan and others are reported to be organizing a company to establish a brick plant, capital stock, \$50,000, to manufacture common, paving and repressed brick from shale, daily capacity, 50,000.

The Harbison-Walker Refractories Company will erect at Wylam, Ala., two additional 100,000 capacity kilns to increase capacity 30 per cent. Output will be 60,000 bricks for coke ovens, etc.

J. H. Moselage, contractor, of Memphis, Tenn., has been awarded the contract at \$13,900 for the erection of the brick school at Germantown, Tenn.

A new theater of brick, and to cost about \$30,000, will start shortly at Chattanooga, Tenn. Plans by Architect A. Ten

Eyck Brown, of Atlanta, Ga. The house will be built by a company styled the Tennessee Realty and Leasing Company, among the incorporators of which are R. M. Watkins, of Chattanooga, H. L. Sperry, R. H. Waller, Edward T. Kane and Clyde Shropshire, of Nashville.

At Meridian, Miss., the contract for the U. S. federal building has been awarded the Newport News Engineering and Construction Company.

One of Albany, Ga.'s, newest industries, and one of which she is justly proud, is the Flint River Brick Company, whose splendid \$50,000 plant is located on the east side of Flint river. Early last year the Albany Brick Company and Cruger & Pace combined and organized the Flint River Brick Company, deserted the plants which they formerly operated, and built the splendid plant on the east side of Flint river upon a large tract of fine clay which they had acquired. The new plant of the Flint River Brick Company is said to be the most complete and up-to-date in the South. A Standard steam dryer is used. The daily capacity of the Flint River Brick Company is 65,000 finished brick.

DIXIE.

THE FUNCTION OF LIME IN CLAYS.*

By A. V. Bleininger.†

THE EFFECT OF LIME carbonate in clay depends first upon the composition of the lime compound and secondly upon its fineness. When we say that a clay contains lime, we mean first of all that the latter is a carbonate of the same composition as limestones, but we fail to realize that, just as the latter differ in chemical makeup, so the lime constituents of clay vary widely. We have pure and impure limestones; we have lime rock high and low in magnesia, and consequently the lime burnt from these materials varies as widely as do our clays. Some limes slake rapidly, others very slowly or not at all. It is evident, therefore, that not all lime present in clays brings about the same effect. Some kinds of lime may be far more harmful than others. Thus, high calcium lime admixed with clay may slake so rapidly that a day or two after the bricks or tile have been taken from the kiln the surface will be pitted by the bursting out of the slaked particles, while magnesian lime may not show the same effect until the bricks are in the wall. It is apparent, then, that all the limes are not alike, and this explains the varying testimony offered at our conventions as regards the action of lime, for it is well known to bricklayers that a high calcium lime will slake much more rapidly in the mortar box than a magnesian lime, i. e., one containing considerable amount of magnesia.

Referring to the size of the lime particles in our clays, we all agree that it makes a good deal of difference whether they are large or very small. The effect of coarse lime particles in the clay after burning is too well known to need description. We know that they will swell and burst the ware as soon as water or steam from the air reaches them. It is interesting in this connection to note that if the burnt clay ware is dipped into water or taken to a very moist room right after it has been taken from the kiln, while still warm, the destructive effect of the lime is very much less evident, in fact, may become almost insignificant. It is the practice in some European districts to lower a wheelbarrow of bricks, containing lime, into a pit filled with water as soon as it is wheeled from the kiln. While this may not be conducive to lowering the freight rates of bricks, it might be worth while for some tile-maker who is afflicted with limey clay to try.

The reason why lime slaked rapidly with an excess of water will not burst the ware (unless the particles are too large) is to be sought in the fact that with plenty of water at hand the quick lime will not expand as much as it does when the water absorption is more gradual.

The very fine grained lime, on the other hand, does not affect the product in this way. It does not slake, because it is fine enough to combine chemically with the clay, so that we have after burning, not lime, but a combination of lime and clay which does not slake and hence does not burst the product. The higher the temperature of burning is carried the more thoroughly will this combination take place.

Fine grained lime carbonate in clay during drying acts much like sand, making such clays very easy to dry. In burning up to a certain temperature it will cause the clay to remain porous, and if much of it is present it will raise the heat required considerably. As soon as a certain temperature which depends upon the clay has been exceeded, however, the lime becomes very active, causing the clay to vitrify and melt quite suddenly. Clays high in fine grained lime cannot be commercially burnt to vitrification, as it is practically impossible to control the heat sufficiently for this purpose. Manufacturers using such clays must be satisfied to burn as hard as possible, but with a safe margin below the vitrification temperature. Highly calcareous clays thus can be depended on only to produce more or less porous ware.

As to color, it is well known that an originally red burning clay by the admixture of fine lime carbonate becomes buff, and, if vitrified, green.

Since, however, our clays contain frequently both coarse and fine lime at the same time, and while we can eliminate the large limestone pebbles quite easily, the question arises, how fine must we grind or crush the particles, say of the size of a pea, so that they may become practically as harmless as the very fine grains? It was thought to be of some interest to illustrate this point by some experiments.

A red burning plastic surface clay was taken, dried and mixed with 10 and 20 per cent. by weight of crushed high calcium limestone of different sizes. Each batch was then made up with water to the plastic state, made into small bricks in a brass mold, dried and burnt. Three burns were made, at cones 08, 06 and 04.

In Table I the 10 and 20 per cent. mixtures of the clay and sized limestone are tabulated so that the number of each mix-

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†By permission of the Director, U. S. Geological Survey.

ture may be connected with the amount of lime used in it, the size of mesh, the per cent. of water required to make them up to a plastic mass, and the drying and burning shrinkage. This series was burnt to cone 08. Similar data are given in Table II for cone 06 and III for cone 04.

The crushed limestone in each case is the size between two sieve meshes. Thus, 6—8 mesh means that size which passes through the 6 mesh but remains on the 8 mesh sieve—that is, sieves with 6 and 8 mesh per linear inch, respectively.

From Table I (cone 08) we learn that the more water is required to temper the mixtures, the finer the size of the crushed limestone. No significant changes are observed as regards the drying shrinkage. The burning shrinkage seems to decrease as the pulverized stone becomes finer, though this

TABLE I.
Cone 08.

No.	%	Mesh.	% Water.	Dry Shrinkage.	Burning Shrinkage.	Total Shrinkage.
1...	10	6—8	31.4	9.6	2.8	12.4
2...	10	8—10	34.7	10.0	3.1	13.1
3...	10	10—14	34.5	10.0	3.1	13.1
4...	10	14—18	31.5	9.0	2.3	11.3
5...	10	18—20	33.0	8.4	2.9	11.3
6...	10	20—40	32.5	8.7	2.8	11.5
7...	10	40—60	35.0	9.3	3.1	12.4
8...	10	60—80	30.9	7.9	3.0	10.9
9...	10	80—100	34.4	8.8	1.8	10.6

10...	20	6—8	33.7	8.8	2.3	10.3
11...	20	8—10	29.4	7.8	3.0	10.8
12...	20	10—14	29.9	7.7	2.8	10.5
13...	20	14—18	30.9	8.6	3.0	11.6
14...	20	18—20	30.3	8.0	2.4	10.4
15...	20	20—40	30.2	7.8	2.8	10.6
16...	20	40—60	30.0	7.8	2.1	9.9
17...	20	60—80	32.0	8.5	1.7	10.2
18...	0	80—100	34.6	8.0	2.0	10.0

TABLE II.
Cone 06.

No.	%	Mesh.	Burning Shrinkage	Total Shrinkage.
1.....	10	6—8	8.0	16.9
2.....	10	8—10	8.4	17.9
3.....	10	10—14	7.1	16.6
4.....	10	14—18	8.0	16.8
5.....	10	18—20	7.8	16.9
6.....	10	20—40	7.6	15.9
7.....	10	40—60	7.3	16.6
8.....	10	60—80	6.5	14.7
9.....	10	80—100	6.4	14.8

10.....	20	6—8	8.4	16.5
11.....	20	8—10	7.9	14.8
12.....	20	10—14	8.2	15.6
13.....	20	14—18	7.6	16.0
14.....	20	18—20	8.1	16.3
15.....	20	20—40	6.9	14.5
16.....	20	40—60	5.5	13.5
17.....	20	60—80	4.3	13.0
18.....	20	80—100	3.12	11.2

change is not marked. From Table II (cone 06) we observe that the total shrinkage for all mixtures is greater than the corresponding total shrinkage at cone 08. Restricting ourselves to the cone 06 table, we notice that both the burning and the total shrinkage decrease as the size of the lime particles become smaller.

Comparing Table II with III (cone 04), we see that at this higher temperature at which the clays are burnt to a good hardness the total shrinkages remain about the same, but that, number for number, the burning shrinkage appears to be somewhat less in the tests of Table III. Owing to the fact that the shrinkages were found by linear measurements, and

that hence slight bloating would cause an error in the results, these values cannot be compared very closely. The striking result in Table III is again that at this temperature (cone 04) the burning shrinkage decreases as the lime particles become smaller in size, i. e., as their surface increases.

After these bricklets were burnt they were placed in a damp closet of good size, where they were kept for a week. The trials were then photographed as presented in Figs. 1 and 2. Fig. 1 shows the specimens burnt at cone 08, and the numbers correspond to the numbers of the mixtures given in the table. The 10 per cent. mixtures are shown by numbers 1—9 inclusive, and the 20 per cent. mixtures by 10—18 inclusive. From this photograph it is evident that with 10 per cent. lime carbonate no evident damage has resulted from the 20—40 mesh size, but that with 20 per cent. the lime must be finer, 40—60 mesh. It also is shown, as is to be expected, that the greater amount of lime has done more radical damage, since only 3 bricklets have gone to pieces completely with 10 per cent., while 5 have broken down with 20 per cent.

In Fig. 2, representing the same test pieces burnt at a higher temperature, cone 06, we observe at once that the injury caused by the lime is not as pronounced as it was at the lower temperature. In the 10 per cent. series two specimens have gone to pieces completely, and one practically so from

TABLE III.
Cone 04.

No.	%	Mesh.	Burning Shrinkage	Total Shrinkage.
1.....	10	6—8	8.2	17.1
2.....	10	8—10	7.9	17.4
3.....	10	10—14	7.9	17.8
4.....	10	14—18	7.4	16.2
5.....	10	18—20	7.8	16.2
6.....	10	20—40	7.5	15.8
7.....	10	40—60	6.3	15.9
8.....	10	60—80	5.8	14.0
9.....	10	80—100	5.5	14.7
10.....	20	6—8	7.5	16.9
11.....	20	8—10	7.0	14.8
12.....	20	10—14	7.5	15.5
13.....	20	14—18	7.4	16.7
14.....	20	18—20	7.1	15.3
15.....	20	20—40	6.5	14.3
16.....	20	40—60	5.5	13.8
17.....	20	60—80	5.1	13.8
18.....	20	80—100	3.0	11.1

the standpoint of usefulness, while in the 20 per cent. series again, five have broken up. With a lime carbonate content of 10 per cent. at this temperature the 20—40 mesh size seems to be fine enough to keep the brick from injury, but with 20 per cent. lime the 40—60 mesh size seems necessary.

In both burns the color of the clay remained red, although it naturally was somewhat lighter than that of the clay itself. No tendency toward a buff color is observed, thus showing that the lime, in order to change the color of ferric oxide from red to a cream color, must be much finer than the sizes employed here.

It seems, then, that in order to assure the prevention of mechanical destruction and pitting of the burnt ware, the lime particles in the raw clay must be reduced in size finer than 40 mesh. If the appearance of small specks is undesirable, it would be necessary to grind the lime finer than 60 mesh. The harder the clay is burnt the coarser may the lime particles be.

As to the removal of lime from raw clay, it is evident that as much of the lime pebbles as possible should be eliminated before crushing. Following this, the clay must be ground as fine as possible. The ideal preparation would be the removal of the pebbles by means of some separating device, the drying of the clay in a rotary dryer, pulverization in a disintegrator,

and screening through a close sieve, after which the material would be ready for pugging.

General Discussion.

President Crabtree: I wish to say in regard to this paper that it is open for general discussion. We have Prof. Bleininger with us, and he is rare; there are not many more like him. If any one has anything to say or questions to ask, we shall be glad to hear from him.

Mr. Richard G. Hoffman, La Grange, Ill.: Gentlemen, I would like to add a few words concerning the remarks of Prof. Bleininger about a mechanical process that takes out limestone. I come from a country (Germany) where they have made tremendous endeavors to get rid of lime because they cannot move, as they do in this country, to where they can get clay that is pure. They have to stay in the neighborhood of big cities and get that trade and do as best they can. We have a dozen different machines that answer fairly well the purpose of mechanically purifying clay. If the lime is in the shape of dust, or fine as flour, it is impossible to get it out, not even by washing or slumming. But if the lime happens to occur in size of grains of more than 1-16 of an inch,

composition of the best paving brick shales in the United States you will find marked differences and, roughly speaking, we can say it wouldn't do you much good to look at the chemical composition alone. The effect of physical structure is just as important as the chemical composition. A vitrifying clay ought not to contain more than 2 per cent. of lime and probably not more than 7 or 8 per cent. of iron oxide, and the balance probably wouldn't be more than 4 per cent., so that the fluxes would amount to 12 or 15 per cent. Of course, this is only a very rough estimate. I can show you clays of almost the same chemical composition that work so different that you would not recognize them.

President Crabtree: In the States outside of Wisconsin there are many other clays that vitrify beside shales, aren't there?

Prof. Bleininger: Yes, many vitrify; almost any clay, as far as vitrification is concerned.

President Crabtree: Have we any clays in Wisconsin that will vitrify?

Prof. Bleininger: Safely?

President Crabtree: Yes.

Prof. Bleininger: I don't know. I don't know your State

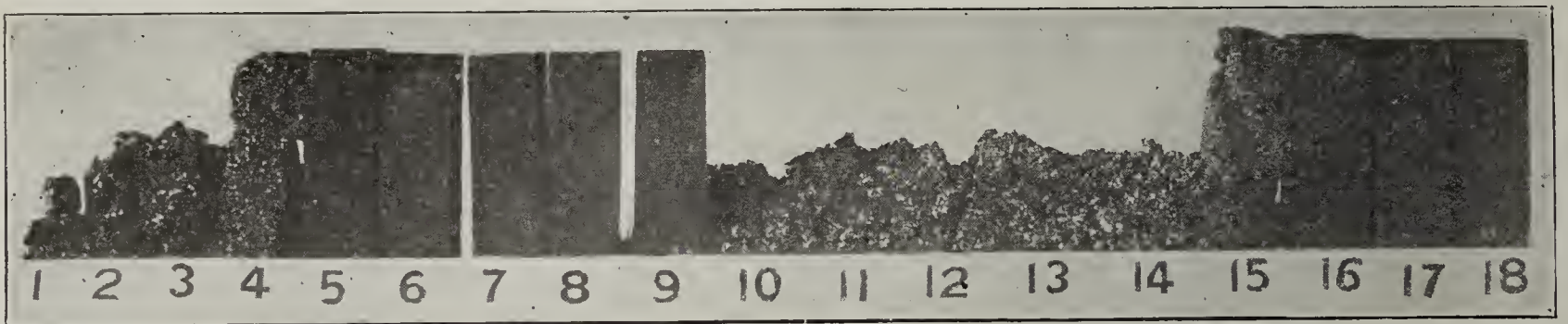


Fig. 1. Specimens Burnt at Cone 08.

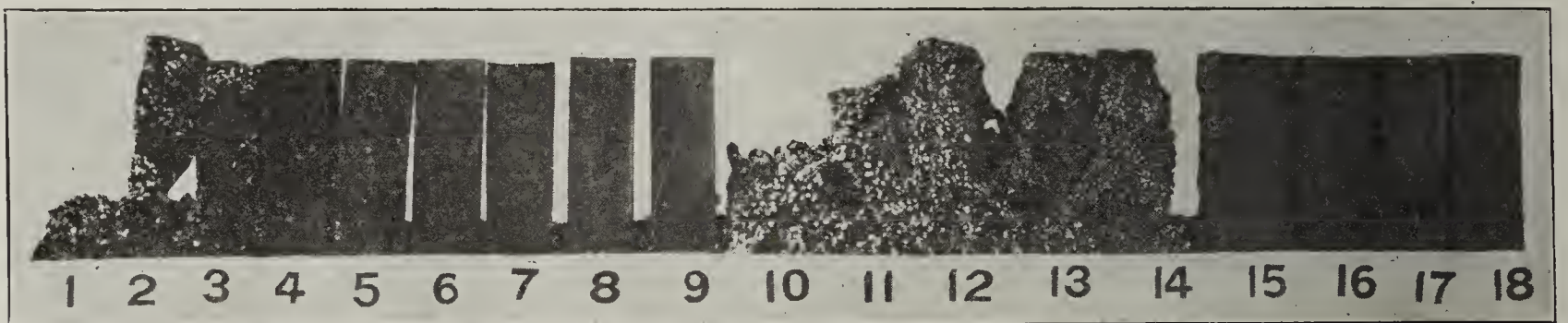


Fig. 2. Specimens Burnt at Cone 06.

and especially if it is in combination with a harder material, like slate, it is not so difficult to get it out, and we have had those machines constructed and in actual, practical operation for a few years which will take out lime pebbles down to about the size of a pin head and do it on a commercial scale; that is a very insignificant outlay when you consider the outlay the machine involves for a ton of clay purified. A ton of clay purified by mechanical process would cost from one to four or more cents a ton, according to conditions. Of course, the conditions are different in every place; therefore, to know what it would cost mechanically to purify clay it would be necessary to try a sample of this clay on the machine. If anybody is interested he could come to Chicago and see one of these machines and see how it does the work and get all information necessary.

President Crabtree: I would like to ask Prof. Bleininger: What percentage of fluxes are usually necessary and of what are they usually composed for ordinary vitrifying clay? I don't know that we have any in Wisconsin, though there may be some.

Prof. Bleininger: There are no definite limits governing the proportion of fluxes. In fact, if you examine the chemical

well enough to be able to say so. It does not appear to me from what I have seen around Milwaukee. But in the northern part you have all sorts of clays, I understand, and I think Dr. Weidman can tell you more about that than I can, because he knows the geology of the State and I do not.

Secretary Weidman: In regard to vitrified clays in Wisconsin, will state that there are some hard, dense burning clays in the area of residual clays of the central and northern part of the State that give promise of making a dense brick sufficiently durable for paving sidewalks and small cities, but we have not yet discovered any high grade vitrifying clays in Wisconsin like those in Illinois, Indiana, Iowa, etc.

NO MORE ASPHALT FOR MILWAUKEE.

It is probable that no more streets in Milwaukee, Wis., will be paved with asphalt. The new Social Democratic regime, which is conceded to be doing the best administrative work Milwaukee has ever known, has thoroughly investigated the paving question with the aid of experts, and has come to the conclusion that other materials than asphalt must be used, at a saving of money and to get a maximum of service.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



JULY BUILDING operations in Toledo fell somewhat below the record made in July last year, but there is nothing startling in the situation. The fact is that the regular summer lull came several weeks earlier this year, and in turn is leaving correspondingly earlier, with the result that, while July marks appeared light, August will undoubtedly show a heavy gain, on account of the unusually early fall building activity in Toledo. The month of June showed a gain of about 50 per cent., estimated cost of new buildings being \$355,921, as against \$244,088 the preceding year. The building brick industry in Toledo has undoubtedly suffered extensively this summer because of the new law changing the basis of appraisement of real estate for purposes of taxation. Under this provision all real estate in the city is being appraised at its actual value, and the enormous increase in the appraisement has frightened many prospective builders altogether out of the notion, while many others have hesitated in their plans until they could determine exactly the status of the taxation proposition. It is certain that a number of important commercial structures which were planned early in the season were called off some time ago because of dissatisfaction at the values fixed upon real estate by the quadrennial board. Many thousands of dollars which undoubtedly would have been spent in new structures had it not been for this change have either sought investment in other lines or have been held in abeyance awaiting developments. Now that the appraisement has been completed and builders have come to know that an increase in the valuation of buildings will result in nothing more serious than a decrease in the rate of taxation, and that the totals of taxes will not necessarily be enhanced, it is probable that much of the contemplated work will again proceed to completion. It is therefore expected that the latter part of the year will more than make up for any apparent local dullness in the brick business during the earlier season, and that on the whole the year will be a very prosperous one among brick men here.

While, as stated, there has been a shadow of depression in the brick business in Toledo this season, that condition has been by no means general. Many of the small surrounding towns have been unusually active, and have furnished a market for large quantities of building brick at good prices. Toledo manufacturers have shared in the benefits of this outside trade, and local plants have been kept busy all summer filling orders from all over this section. The Michigan trade has been especially pleasing, and shows no signs of abating at the present time. Detroit itself has furnished a market for thousands upon thousands of Toledo brick, and many other Michigan cities have been constant buyers from this center. Prices show no sign of weakness, but on the contrary are firmer now than they have been this season. In fact, the price tendency on building brick is decidedly upward rather than the other way, and, with the coming of increased activity in local building circles which now appears to be a foregone conclusion, it is not expected that building brick will sell for less money during the balance of this season.

The local plants are all in operation, and are running at or near capacity, and are finding a ready market for their entire output, leaving but a small surplus on hand. Continued activity is reported from paving brick and sewer pipe manufacturers, the season being a pleasing one in both lines. In fact, all clayworking institutions in this section are doing a splendid business, and report a steady improvement in conditions generally. There is very little complaint heard from any source, but on the contrary an optimistic feeling pervades

the situation, and there is promise of an exceedingly satisfactory year if indications count for anything.

Suit has been instituted in the court of common pleas at Toledo by the Fidelity and Deposit Company of Maryland to recover \$6,724.37 from Richard G. and Edwin M. Kerlin. It is alleged that the amount is the uncollected portion of a note for \$19,341.65 given by the Logan Brick Manufacturing Company to Charles L. Stacy, Jr., and indorsed by the Kerlins. The original note was secured by a chattel mortgage on 2,400,000 brick, and the plaintiff seeks a judgment for the unpaid balance. The note bears date January 24, 1907.

Among new structures now assured for Toledo, and which will furnish a market for an unusually large number of building brick, is a power building designed for the housing of numerous small manufacturing industries, which will be erected by Irving, Macomber & Co. this fall at Wakeman and Fourteenth streets. The building will be four stories high, containing 200,000 square feet of floor space, and will be built by the unit system. As soon as the first wing is completed and filled with industries another wing of the building will be added. It will be supplied with power from a central plant. Plans are being prepared for the structure, and contracts will be let within a short time. The estimated cost is about \$125,000.

Chris Moder, a foreman of the big Ada Tiles Works, at Ada, Ohio, was fatally injured in an accident at the plant last week. He was assisting in putting on a huge belt, when he slipped from a platform and, falling inside the belt, was carried around the big pulley between it and the belt. His lungs were crushed, collar bone and ribs broken, and several teeth were knocked out. He came to Ada last spring from Marysville at the time the plant changed hands.

The plant of the Anderson Electric Porcelain Company at East Liverpool was recently destroyed by fire, incurring a loss of about \$30,000, two-thirds of which was covered by insurance. A sudden and unexpected pressure of gas caused the fire. It was a three-kiln plant, and will probably be rebuilt. About fifty people were employed.

The city of Bowling Green is making an unusually large number of municipal improvements this summer. In addition to a storm and sanitary sewer on numerous streets, several miles of fine roadway are being built.

John Albright, a sewer inspector, while engaged in inspecting a sewer on Lee street in Ironville, last week, was precipitated headlong seventeen feet upon the brick foundation. He was standing upon a board looking down, when it broke, throwing him into the hole. His right shoulder was badly hurt, and he was cut about the head.

About 200 people were thrown out of employment at the Zanesville Art Pottery plant in Zanesville, Ohio, as a result of a fire which completely destroyed the property, incurring a loss estimated at \$125,000, partially covered by insurance. The fire had made considerable headway when discovered, and the low pressure of water proved a handicap to the fire fighters. The blaze originated in the boiler room. The plant will be rebuilt.

T. O. D.

BUSY DAYS FOR THE SCOTT-MADDEN COMPANY.

The Scott-Madden Iron Works Company, of St. Louis, Mo., and Rushville, Ind., has been quite busy for some time. They have lately shipped a large number of tile machines to points in Minnesota, Illinois, Iowa, Indiana, Ohio and Kansas; stiff mud brick machines to Maine, Minnesota, Ohio and Iowa; dry presses to Kentucky, Tennessee, Illinois and Texas; dry pans, crushers, pug mills, cutting tables, clay gatherers, clay plows and other supplies to different parts of the country, and inquiries are coming in for machinery which they manufacture at both their plants. They build the Andrus Brick Press and a line of dry pans, crushers, pulverizers, clay gatherers, etc., at their plant in Keokuk, Iowa, and the Madden Tile machine and stiff mud brick machines and a general line of stiff mud drain tile supplies at their plant in Rushville, Ind.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

Does Quick Drying Affect the Quality and General Efficiency of Vitrified Paving Brick?

Possibility of quick drying depends upon the physical structure of the clay, and depends somewhat upon the mode of manufacture. If the clay is of a very fine grain, quick drying may destroy the texture, and in that way destroy the bond among the clay particles. It is tacitly admitted among brick-makers that a coarse grained clay will stand rapid drying, so it can readily be seen that the speed of drying is relatively dependent upon the characteristics of each clay individually.

Does Rapid Oxidation Cause Light Colored Brick? Are Light and Dark Colored Paving Brick Secured from the Same Quality of Shale?

The color of burned brick is dependent upon the iron percentage and its oxidation; this in turn again upon the length of time that it is taking place and the temperature at which it is taking place. The higher the temperature and the longer the time of oxidation the darker the brick. This oxidation process, in toto, must be adapted to each clay individually, and experience is the best teacher thereto. Here in our town we have light colored brick coming from one plant that are of better service than dark colored brick from another plant. Then we have another plant here where the light colored brick are of better quality than the dark brick, because on this plant the brick turn brittle just as soon as they are burnt a little hard. The rattler test and the absorption test should be taken together, one to be a compensation for the other. It sometimes happens that a light colored brick stands the wear better than a dark colored one out of the same kiln. Brick when burned too dark are apt to be brittle, while the light colored ones are apt to be tougher. A light colored brick may have just as dense a body as a dark colored one.

Is it a Safe Proposition to Risk the Shipment of Paving Blocks Showing a Rattler Loss of 18 Per Cent. and an Absorption Test of 6 Per Cent.?

As to the qualities of a paver showing 18 per cent. rattler test and 6 per cent. absorption test, would say that the writer knows of a large paving brick concern whose brick sometimes only show one-half of 1 per cent. absorption, because the brick are burned so hard (glassy) that they have but very little pore space. But they are at times so brittle that the rattler test shows a loss of 30 per cent. This product illustrates an instance where toughness is sacrificed for absorption. Then again, take a brick where the abrasion loss is only 15 per cent. and the absorption is 10 per cent.; this would show a condition where absorption has been sacrificed for toughness. However, it can be stated that inspectors as a general rule use the following standard as a guide: That where the paving brick shows a relatively low loss in the rattler test and the absorption test is relatively high, then the brick is acceptable. If the brick standard specified is rattler test 18 per cent. and the absorption test 5 per cent., then the inspector would pass a brick that stood 15 per cent. rattler test and 6 per cent. absorption test, but would be likely to condemn a brick that showed 21 per cent. rattler test and only 4 per cent. absorption. To all intents and purposes a paving brick that will stand 18 per cent. rattler and 5 per cent. absorption test will meet all ordinary requirements, but it is not at all times safe to risk 6 per cent. absorption. The great desideratum is to burn a paver hard without carrying the vitrification too far (glassy structure), and as a rule the absorption will take care of itself. No definite rule can be laid down for the burning part of the manufacturing process, as the successful carrying

out thereof is dependent upon so many variable factors, such as the physical structure of the clay, the chemical constituents of same, the type of fuel used, the maximum temperature employed, the duration of the soaking heat, the manner of firing and the mode and length of time used in cooling.

Each and every paving plant has a problem to work out for its own salvation and success.

With Both Light and Dark Colored Brick Standing the Abrasion Test, but the Light Brick Failing in the Absorption Test, Which Would be Considered the Best Brick? Would it be Advisable to Place the Light Brick in the Same Pavement with the Dark One?

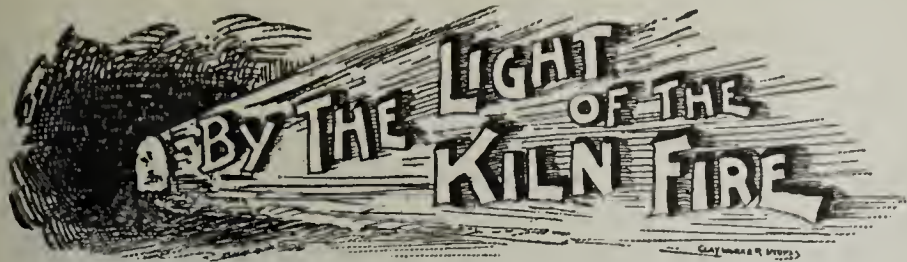
Personally, I believe that more weight should be given to the rattler test than the absorption test, because, if the brick stands a good rattler test, this is then an indication of good bond and toughness, in turn providing good resistance to the destructive influence of freezing water or moisture; or, in other words, if a light colored brick stood better than the prescribed rattler test, then it should serve as a percentage benefit to a slightly deficient absorption test. At best clays are merely a mixture varying in component parts, and do not run uniform, so that if a person were to take every five hundredth brick as they are sorted out of the kiln for pavers they would not run uniform as to color, rattler and absorption test. Such being the case, there should be a certain elasticity in the specifications that will allow a fair, reasonable leeway both to the manufacturer as well as to the city engineer. If such a step is not taken or granted, the paving brick proposition becomes prohibitive both to the manufacturer as well as to the consumer. It should also be admitted that the absorption test should carry more weight with it in colder climates than in warmer climates. This is readily proven when comparing quality of bricks that give good service in the South and would utterly fail in the North.

What are the Relative Merits of Rattle Test and Absorption Test for Paving Brick?

The absorption test and the rattler test should go hand in hand to determine the value of a paving brick or block. The absorption test is made primarily to determine the density or the open structure of the brick, capable of absorbing water, in order to estimate the amount of ice that may be formed in the brick or block when subjected under such conditions to freezing weather. It is a well-known fact that water freezing into ice has an expansion force, and if the bricks are not burned hard enough or the cavities be too large or numerous, then the brick will be shattered. The brick should always, at least, be burned hard enough so that the cohesive force of the burned clay particles is stronger than the destructive force of the forming ice.

The rattler test on paving brick is made for the purpose of determining the wear and tear caused by the travel thereon. The rattler test, as far as known, is about the best rapid practical test extant, and is considered superior to the revolving flat disk abrasion test, as it is taken that the tumbling about in the barrel is an equivalent in a way to the hammering caused by horses' shoes and the grinding action of the wheels. The rattler test is used to determine the so-called toughness of the paving brick or block.

The intelligent street commissioner should and does use the tests in conjunction with each other, in what might be termed a sliding scale, as all paving brickmakers know that all of the paving brick taken out of one kiln are not alike.



TWENTY YEARS AGO.

An Episode with a Moral.

IN THE OFFICE of the X. Y. Z. Brick Company the superintendent said: "That is all nonsense to talk to me about the advantages that would come to us by accepting the services of a technical-chemical man. No, sir! What we want are the services of the practical man, that can do and does do things. What do we care whether he can or cannot tell us the reasons for doing certain things in certain ways? Results are what we want and get, without an accompaniment of theoretical explanations. What does the theoretical man know, anyway? Yes, what does he know? He gets a little smattering of chemical analysis, a little knowledge of humidity and its effects on air used as a drying medium, knows something about the theory and fundamental laws of combustion, and possibly may be able to make complex fuel calculations and give the results in B. T. U. We have been in the business for years, and have our burning proposition down pat. You want to know whether we do not try any burning experiments? Oh, yes! Our burners tell us that no two kilns burn alike, nor does the same kiln burn twice alike in succession; that their experiences teach them to look out for wrong goings and apply the remedies, or, as they sometimes say: 'We had to try this and that before we had the kiln going right, but we got it all right again.' Now, with a theoretical man! What does he do when his theory is upset? Why, he is just knocked out. No, sir! We are doing all O. K. with practical men, and have no room for theoretical-technical-chemical men. Why, my boy, some of these theoretical experts cannot even throw a good fire on a flat grate bar."

Two Weeks Later.

6 p. m. The day burner, in turning over the kiln to the night burner, tells him the kiln is in good condition, has a good draft, takes the fires in good shape and is moving nicely. The stack is dampered and just right, and you can make any changes you may deem necessary.

7 p. m. One bucket beer.

8 p. m. One bucket beer.

9 p. m. One bucket beer.

10 p. m. One bucket beer.

The night burner laid down to rest a little, giving orders not to make any fires until he orders the firemen to do so, and cautioning the firemen not to fall asleep.

11 p. m. Everybody sleeping.

12 p. m. Everybody sleeping.

3 a. m. Everybody sleeping.

4 a. m. The burner awakens, finds the firemen asleep, the fires out, and the kiln at a standstill, with the fire boxes as black as your hat. Then there was some tall hustling to get the kiln back to its proper condition. At the same time there was a pledge of secrecy all around, so that no one would lose his job.

6 a. m. The kiln was turned over to the day gang, told all about the night shift's troubles, and also pledged to secrecy.

For the next two days and nights this particular down-draft kiln was subjected to all kinds of fires and the daily reports falsified so that the superintendent would not find out anything wrong and no one would lose his job. But, alas, with all the extra care and attention, the kiln did not move any at all, and fears were entertained that the kiln would be

light and flashed—in other words, the results would be a damaged kiln. This floating burning gang, after finishing this kiln, were ordered to another yard.

Two Weeks Later

This kiln had been drawn, and the sorting report was sent in to the superintendent, who, upon looking it over, was amazed at the statements, and would not believe that the report gave the true results. Word was sent out to the plant that the superintendent wished to meet both the day and night burners at 6 p. m., when the changes of shift took place. When the two burners received this message they both felt that their time was up, but in order to bolster up their position both agreed not to admit of any wrong-doing, but to claim that each one had handled this particular kiln in a regular way on each one's shift, so that their statements would coincide with their daily reports, and when being questioned by the superintendent they remained true to their statements that the kiln had been handled in the regular way. But the superintendent informed them that the drawing report turned in showed such a wide divergence from ordinary results that proved conclusively that the kiln had been handled radically different than any other kiln of that type before this one. The burners were on the anxious seat, and wanted to know the nature of the report. They were informed that the report had dumfounded everybody in the main office; that there had been only two shades of dark red face brick taken out of the kiln; that there had not been any kiln marked nor any flashed brick in the kiln, and such phenomenally good results had never before been effected in the past history of the plant. But the burners did not and would not offer any explanations, and the superintendent ordered experimental burns in that particular kiln by that burning gang, so as to discover the cause of that one phenomenally good burn, and these research burns were kept up for a number of years, some of the kilns practically proving a total loss for face brick purposes.

Five Years Later

The same superintendent volunteered this statement: "We tried all we knew or could think of to get at the secret of that one phenomenal good burn, but were not successful. I think it largely due to the fact that we employed no scientific method in securing correct data or keeping accurate control of the burns as they progressed. We are convinced now that the personal equation in burning propositions must be eliminated, because it savors too much of guesswork, or possibly unintentionally created conditions that are not kept under judicious control. We have read up a great deal on the burning proposition, and believe that if the proper instruments for recording and measuring conditions had been employed by us in the care of a technical-chemical engineer, the mystery of that proper burn would have been disclosed. At any rate, our negative experiences prompt us to acknowledge this position."

Moral.

That with the technical man's "why" and the practical man's "how" working in harmony together, it is easier to obtain information and keep accurate control than where there exists a spirit of doubt.

BROWN PYROMETER COMPANY'S NEW OFFICES.

On account of the large increase in the sale of the Brown pyrometers for high temperature measurements, the Brown Instrument Company, 311 Walnut street, Philadelphia, Pa., has opened offices in the Oliver building, Pittsburg, Room 201, and also in the Commercial National Bank building, Chicago, Room 504. At both of these branch offices spare parts for their instruments are to be carried in stock, and prompt and courteous attention will be given the demands of customers and friends. They will be pleased to have clayworkers call when in Pittsburg and Chicago.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Good Demand for Alabama Brick.

Editor THE CLAY-WORKER:

Enclosed find check to renew my subscription to THE CLAY-WORKER. Business is all we can ask for. We are shipping brick as fast as we can take them out of the kilns. We make 50,000 a day, and have a large storage shed for our clay, which enables us to run in rainy weather. We set our brick 54 high in up-draft kilns and get 90 per cent. hard brick.

With best wishes for THE CLAY-WORKER,

Yours truly,

R. O. GANGEWERE,

Selma, Ala.

Superintendent A. G. Kahn Brick Co.

Roofing Tile as Made in England.

Editor THE CLAY-WORKER:

Having noticed in THE CLAY-WORKER that several firms have inquired as to whether roofing tile can be made on a small scale, I say yes, as profitably on a small scale as on a large scale if properly made. The way they are made by several of the larger and best firms in England is by running them out on a hand machine two at a time. I mean two at a time with one column of clay, with a wire across the die.

Tile in England are made very thin, from one-fourth to three-eighths thick, the lighter the better. These machines are worked by two boys, which makes the cost of manufacture much cheaper than if worked by manual labor. The tile are run from machine along a cutting table, cut off, and then put on a cold floor. Next day they are picked up and stacked solid together and left for twenty-four hours to bring them to one stiffness, when they are taken to a screw wheel press worked by hand, the plates being beveled the right shape for the tile to fit the roof. The presses can be had to make any kind of tile made by giving dimensions of shape of tile which is wanted.

We have a firm here that makes one of the best if not the best press on the market, the Nuneaton Engineering Company, of Warwickshire. When the tile are pressed there should be templets the shape of the top of the tile to put them against on edge. The templet to be against the wall so that it will hold tight. Put some ten or twelve tile down, then there should be a templet to fit inside of the tile with a handle to it. Put this close to the tile and hammer them up so as to fit close and tight together, insuring straightness. The floor the tile is put on should be cold. When they are on for a week, then put on the heat gently. Tiles made this way are made at a very small cost in labor, but they need from three weeks to a month to dry. By this process you keep all your tile one shape and of the best quality.

Templets to hold the tile on the floor should be made of good timber that will not get out of shape. The mallet or hammer should be of wood. The tile can be set right from one end of the shed to the other by keeping them knocked up close to one another ten or twelve at a time.

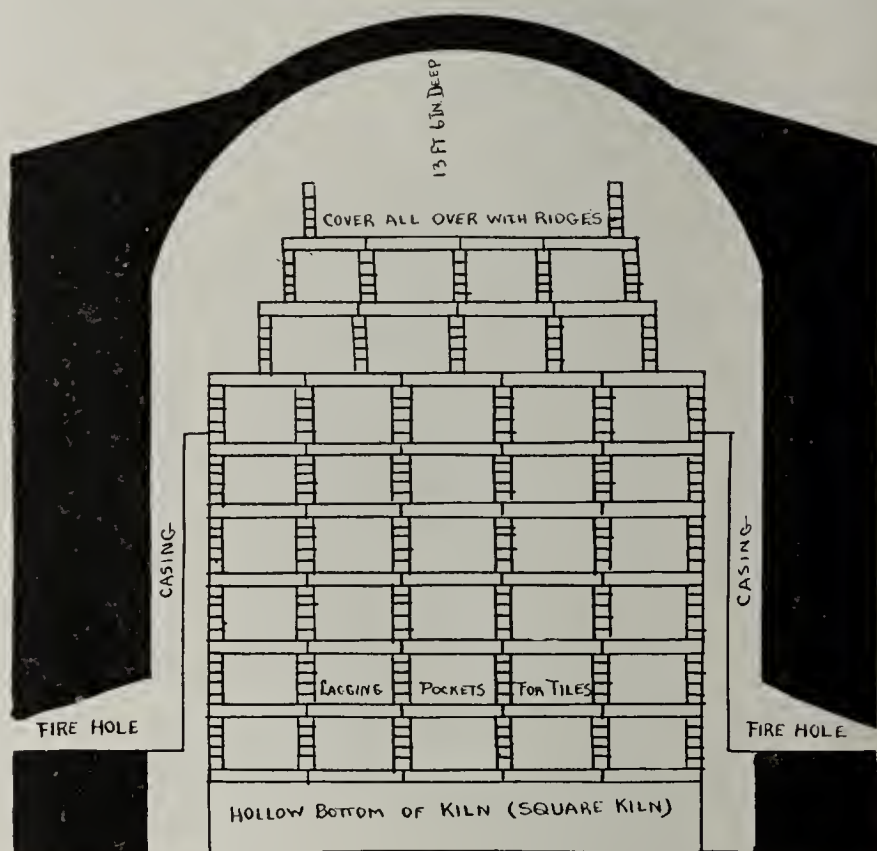
The setting on a small scale can be done by setting in pockets, four together between the brick; this gives you space to keep crossing over with your green brick, also enabling you to get a fair quantity in a kiln. Never set more than one deep if you want to insure getting quality. Some set tiles

three and four deep on top of goods set, but when shrinkage comes they give way, and very often cause the bulk of them to be seconds, thirds and waste.

The best way to burn roofing tile is by setting in pockets made by green brick and lagging made from fire clay. The laggings should be made 22 inches long, 3 inches deep, 2 1/4 inches thick. By this process you get a great quantity in a kiln. You make the pockets by building green brick up so as to clear the tile from 1/2 to 3/4 inch. Be sure that no weight comes on the tile, and begin on the floor of the kiln. Keep on going up until there is room on top to put two courses of ridge tile. Then there are plenty of ridges to go along with the tile, insuring goods for roof of one quality and color. While the tile and ridges are made by machinery, the hips and valleys must be molded. They could be made by machinery, but they would cost more to cut and get up than they do molding.

I am sending a rough sketch of how to make the pockets for setting tile. They must be set on edge, nib of tile at alternate ends, so as to keep tile open and insure the fire and draught going through good. Ridges and terra cotta can be set the same way.

I hope what I have written will encourage more of my



Method of Making Pockets for Setting Roofing Tile.

American brothers to go in for this class of goods, as it is a very good paying business—none better if worked properly.

Any one desiring any further information on this subject I will willingly oblige, and give information either on what are the best bodies for this grade of goods or how to make them.

I am a well wisher for the clay trade in the States.

H. W. HARDY.

To Use or Not to Use Manganese.

Editor The Clay-Worker:

I read in the July Clay-Worker that Mr. W. B. Cravens, of South Dakota, is starting a yard to make brick, and I cannot pass him by without a word of advice. He states he has a bed of shale which contains manganese of iron and that he intends to make this up into brick by the dry press process. Now, I say to Mr. Cravens, be advised and do not mix the manganese with the clay, or he will make a failure from the very start. As by grinding the clay for the dry process, he can get the clay and manganese in a coarse state and the manganese will run out and leave holes in the surface of the brick, and that will spoil the brick. Another trouble he will

run up against will be that the brick will be mottled. Now, if he is going to use the body, as he says in his letter, I would advise him to make by the stiff mud process, as by tempering the clay in a plastic way he will get the clay and manganese properly mixed, and the two combined this way will make a much better brick. The clay or shale, as he calls it, ought to make a splendid Staffordshire blue-bodied brick for both building and paving, and also blue roofing tiles. He can also make vitreous red brick as well by the same process, if he understands the business, or has a man who does. These two brick are made the same way, but are burned differently. I don't want Mr. Cravens to think I am pushing myself forward, for I am only giving the advice from personal experience, and hope this will enable him to make brick from his shale body without any trouble. He can make brick by the dry process if he uses the shale alone.

Very truly,
H. W. H.

Heard in New England.

Editor THE CLAY-WORKER:

In Boston the situation has changed but slightly from previous conditions. Business has remained at about the same level as formerly, and shippers find a moderately active market for everything that they can send forward. Operations in and about Boston are more in small buildings than in large structures this season, with no prospect of any important building being given out for some time. There is a large number of the smaller buildings, however, and the aggregate requirements for brick are fully as liberal as they have been some years when large operations dominated the situation and bidders were supposed to make low propositions because the requirements were so large. From \$6 to \$6.75 seems to be about the range for the best New Hampshire stock. Some Massachusetts-made selections are quoted 25 cents higher, but these offerings are relatively light and do not make much difference with the general situation in the market.

Other Massachusetts cities are developing good business, with buildnigs in course of construction, or projected, surpassing any year for a considerable time. Cement is coming into Massachusetts towns far too liberally for comfort, and there is, perhaps, a feeling among brick men that it is time to take account of this new competitor. The opportunity for using cement there is better because there are no high buildings erected, and the dangers which lurk in cement are not developed. It would be wise for the brickmakers who supply the Massachusetts cities to investigate this cement proposition and discover something of the strength it has already acquired in the New England district. One can scarcely tell in a hurried trip through the country, but the appearances are that it is winning its way much faster than it should for the adequate development of the brick business. In New England it is a characteristic to obtain whatever they have as cheaply as possible, and the cement man who offers to do a certain piece of construction work at a less price than the brick man would get it, not because it is cement, but because it is cheaper. That seems the main idea all through New England, and that is what makes cement dangerous.

HIRAM.

BIG EXPOSITION FOR PITTSBURG.

Pittsburg is preparing for the biggest indoor exposition ever held in the East. The show is to be known as the National Land and Irrigation Exposition, and will consist of exhibits of land interest only. There will be government and state exhibits of modern farms and model dairies, models of irrigation plans and systems, samples of grains, seeds, plants, fruits, vegetables, cottons, tobaccos, minerals and other earth products. Lectures on soil restoration, and commercial bodies from all parts of the country will demonstrate to the farmer, the homeseeker and investor the particular advantages of their various districts.

The exposition will take place October 17-29, and will be advertised on a mammoth scale.

A NEW FIRM OF DRAINAGE ENGINEERS.

The Morgan Engineering Company, of Memphis, Tenn., has been organized by Arthur E. Morgan and L. L. Hidingier, for the practice of hydraulic and drainage engineering, with special reference to the reclamation of swamp lands. The field covers also the reclamation of tide lands, of irrigated lands damaged by seepage and alkali, of overflowed lands requiring levee protection, and of hillside lands damaged by erosion; river control and improvement; the installation of pumping plants for drainage and irrigation; the planning of tiling systems, and the development of rice lands.

Mr. Morgan leaves the position of supervising engineer of the United States Drainage Investigations. Previous to his government service he was in private practice in Minnesota, and planned a number of the larger drainage improvements of that region. In the government service his practice has been in Colorado, investigating and planning the drainage of irrigated lands damaged by seepage and alkali; in the delta lands of the lower Mississippi valley; in the Central States, and along the Atlantic coast. In 1908 and 1909 he superintended a survey and has completed plans for the reclamation of the upper St. Francis valley in Arkansas, a project estimated to cost \$7,500,000. He has acted as consulting engineer for the Little River Drainage District in Missouri, estimated to cost \$4,000,000; for the Plum Bayou and Tyronza Drainage Districts in Arkansas, estimated to cost \$800,000 and \$200,000, respectively, and for the Tallahatchie Drainage District in Mississippi, estimated to cost \$3,500,000.

Mr. Hidingier has been in the government service for the past four years as drainage engineer of the United States Drainage Investigations. His practice has included surveys and plans for river improvements in the States of Washington, Illinois and Georgia; the reclamation of salt and alkali lands in Texas; the protection of tide lands in Maryland and Delaware; the drainage of Mississippi and Louisiana delta lands; the installation of tile systems in Iowa and Georgia, and the planning and installation of sanitary drainage and sewerage systems.

The company is prepared to take entire charge of drainage engineering projects of whatever size; to make surveys, to prepare plans and estimates, and to superintend construction. The members of the firm are available for making examinations and reports, for consultations, and for co-operating in directing the work or examining plans and reports of local engineers. A wide acquaintance in various parts of the United States with lands needing drainage forms the basis of their judgment of the agricultural and investment values of swamp and overflowed lands; while experience in the organization of more than one hundred drainage districts has given them a working familiarity with such organizations.

"WELLINGTON" SAND MOLDING MACHINE ENJOYING WIDE POPULARITY.

R. H. Bennett, secretary and treasurer of the Wellington Machine Company, Wellington, Ohio, writes that they have been very busy this summer. The "Wellington" mold sanding machine is in great demand, as the following list of brickmakers to whom sanders have recently been shipped demonstrates: Barnum Brick Co., Denver, Colo.; Preston School of Industry, Waterman, Cal.; The Manufacturing and Supply Co., Boyne City, Mich.; Deming Brick Co., Deming, N. M.; C. E. Castle, Fairfield, Ill.; D. J. Landers, Holyoke, Mass.; Lynch Brothers Brick Co., Holyoke, Mass.; North Adams Brick Co., North Adams, Mass.; E. K. Phillips, Willimansett, Mass.; Norton Brick Co., York Village, Me.; Densmore Brick Co., Lebanon, N. H.; Bagley & McDonnell, Middletown, Conn.; John D. Johnson, Middletown, Conn.; J. C. Lincoln, Middletown, Conn.; Clark Brothers Bolt Co., Milldale, Conn.; Wilson Brick Co., Wilson, Conn.; Marcy & Gardner, Amherst, Mass.; John Heim, Dubuque, Iowa; Boston Brick Co., Chelsea, Mass.; Boston Brick Co., Gonic, N. H.; New England Brick Co., Epping, N. H.; B. F. Atherton, Waterbury, Vt.; Queen City Brick and Stone Co., Winooski, Vt.; J. S. Haggerty Brick Co., Detroit, Mich.

Written for THE CLAY-WORKER.

CALIFORNIA CLAY NOTES.



A STRIKING evidence of the growth of the clay industry in the West, announcement is made at San Francisco that another large pottery will shortly be opened in California.

The Oakland Brick Company, backed with considerable capital, has just purchased thirty-two acres of land in the Haggin grant as a site for a pottery, and will immediately begin the construction of a plant which will cost approximately \$500,000. In selecting this location the officials of the company recognize the growing importance of Sacramento as a distributing center, with railroad connections reaching every portion of the Golden State. As the California pressed brick and terra cotta have found a ready market in Pacific coast States and large cities in neighboring States, Sacramento should prove an admirable center for distribution of the new firm's goods.

The clay lands of the company, which are declared practically inexhaustible, are located at Ione, but it will be much cheaper to transport the raw material to Sacramento for manufacture than it would be to ship the finished product to the market from the locality of the clay beds, and for that reason the directors of the company have determined to establish the factory at Sacramento.

The projected plant is an important enterprise, which, when completed, will give employment to about 500 men. It is estimated that the pay roll of the company will be at least \$450,000 per annum, and the operation of the plant will be continuous throughout the year. For convenience in the transportation of supplies, as well as for the transportation of the output of the factory, it is the intention of the company to construct a trolley line to Sacramento. The new line will connect with the California Traction road for convenience in carrying the raw material from the clay beds.

In addition to the pottery work, twenty kilns are to be erected, which will have a capacity of 140,000 white pressed brick per day. The erection of the plant is to begin at once, and the work will be hurried to completion, owing to the strong demand for building material which exists at the present time throughout the State.

The clay industry at the present juncture is in a most flourishing condition, work being especially brisk at Gladding, McBean & Lincoln's pottery, at Steiger's of San Francisco, and N. Clark & Sons of Alameda and San Francisco. At these three potteries the terra cotta departments are working at high pressure. This greater demand for terra cotta and pressed brick is undoubtedly due to the paucity of reinforced buildings now being erected. Once more the products of clay are the vogue in the West, chiefly owing to the greater scope for effective color treatment in terra cotta than compared with cement. The demand for rustic brick, polychrome terra cotta and white matt glazed pottery at the present time has had no equal in the past.

N. Clark & Sons, Alameda, are supplying terra cotta for Sacramento's Labor Temple, Maryville Elks' Hall, Spring Valley Grammar School; in San Francisco, the new eight-story St. Francis Real Estate Building, the Hirshfield Hotel, Denman Grammar School, St. Francis Hospital, Hearst residence, etc.

Altogether, the outlook for the clay industry was never brighter on the Pacific coast.

RUSTICUS.

IMPROVEMENTS AT AMERICAN CLAY COMPANY'S PLANT.

A big extension is being made at the plant of the American Clay Machinery Company, at Bucyrus, Ohio, with the completion of which the foundry will have an increased capacity of nearly double. For some time the foundry of the company has been inadequate to take care of the work, though it has

occupied over half a full block. The American Company's foundry is already one of the largest in that part of Ohio, and, with this addition, will be better than ever able to handle its large volume of business. The company has also installed a one-hundred-horse-power electric motor, which is being driven by the city plant. A new generator is also being installed, which will be used for generating current for the electric cranes and for illumination purposes. A fifty-horse-power gas engine is being installed in the south end of the shop to give increased power.

ENAMELED BRICK.

Enameled bricks are meeting with increased favor in this country, as a material of utility and beauty for buildings and other purposes, and many fields in which they can be used are constantly presenting themselves. Formerly a prejudice existed to the use of enameled brick, owing to the fact that they had to be imported from abroad. Of recent years several of the leading brick manufacturers have made enameled brick in this country. Some of them have been singularly successful. Enameled brick manufactured by one firm is similar to that made in England. They place the enamel on a fire-brick body and burn with one firing. Some manufacturers endeavor to produce enameled brick by using previously burned brick, dipping it in a glaze and again firing it. The effect is to produce an uneven finish. By the English process the enameled surface is perfect in every respect. Enameled brick have won such favor in England that the municipality of London requires that all courts and alleys be built of the material.

Enameled brick is largely used abroad, and foreigners express surprise that our architects do not utilize them more extensively, as they reflect light, are fire-proof, have no odor, prevent dampness and have a fine finished surface which is ornamental.

THE BEST EVER.

Doubtless our paving brick readers have asked themselves the question, "Why has Cuyahoga county, Ohio, four hundred miles of brick paved highways?" Some may answer that it is due to superior salesmanship on the part of the Ohio paving brick manufacturers. This is evidently the version of the cartoonist on one of Cleveland's daily papers, who depicts the boss salesman, Charlie Deckman, in the act of convincing the County Board of Works that the Deckman-Duty block is "the best ever."



Puzzle Picture: Which is Charlie Deckman?

Written for THE CLAY-WORKER.

EASTERN BRICK NOTES.

HUDSON RIVER common brick were firmer in price during the week, and sales were fully as active. Quotations ranged from \$5 to \$5.50, and in exceptional cases still higher. This brought out a flood of lower grades, and the market was slightly choked with these at the time this was written, but \$5.25 to \$5.50 was quoted at the close of the day this was mailed. This is a very close range for this season, and indicates how sharply buyers are watching the market. The first week in August opened brisk, but toward the middle business had begun to decline, and by Thursday it was difficult to market the incoming cargoes. Buyers hesitated because of the scarcity of really good brick. Transactions for the week were: Left over from the previous week, seven; arrived, sixty-eight cargoes; sold, seventy-two, leaving three on hand at the first of the week.

This seems to be about the only change in the market. Buyers are conservative in their operations, and refuse to buy extensively unless they can obtain stock at about their own figures. On the other hand, really good brick is selling with reasonable activity. There is a good demand for the best grades, and sales have developed fairly well of late. But the determination of buyers to operate only as necessity dictates spoils any considerable increase in business for the present.

Building permits are not as numerous as they have been. Activity has declined somewhat, as compared with last year at this time, though about all other business enterprises are in better shape. The reason is not apparent, unless it is the higher cost of building material and the doubt expressed with reference to the outcome of the present crops. Drought has injured them in some localities, and this has a tendency to decrease business, but aside from this there is no cloud on the horizon. It seems as though business might be better in building. Some are confident it will before the season closes, but they do deplore the reduction in the number of permits now.

Harold K. Hammond, representing a large brick yard on the Hudson, says: "The sale of brick during the first six months of the year was the largest ever known before. It far surpassed the record for 1905, which has been the standard ever since. The trouble has been low prices during the spring. While figures are about normal now, they were about \$1 lower than they should have been during the period immediately following the opening of navigation. That the demand has kept up is shown by several weeks recently, when more brick was sold than entered the harbor. The outlook is good for a continuation of the same desirable situation."

Raritan River brick is still being featured in contracts, and prices in the market range from \$5 to \$5.50, with few cargoes on sale. This scarcity is due to the heavy delivery orders taken recently by Sayre & Fisher and other central New Jersey firms. They are all taxing their capacity to make the output come up to the demand. The increased demand for brick from this section has had the effect of compelling the increase of the size of a number of plants, and occasionally one hears of contemplated improvements upon a still larger scale than any yet made. The Raritan brick has increased in popularity very fast, and business is to-day better than it was a year ago; better, too, than it was earlier in the season. The increase is so marked that it seems as though the Raritan brick was increasing in popularity faster than almost any other that is made.

The companies along the Hackensack are having an average season, but they have had to face a recession in prices, a reflection of the condition which controls in the Metropolitan district. The Hackensack yards are only a little more than ten miles away from New York by either water or rail, and the prices buyers pay for the product of those yards is scarcely more than they pay in New York for Hudson river common

brick. In fact, the price is controlled almost exclusively by the price on Hudson rivers.

Trenton yards are running full, but they have been forced to sell at lower prices in some instances, due to changes in the metropolitan district which developed lower values. Conditions locally seem to be good, with some demand for substantially everything offered. Values show no indication of increasing materially for the present.

Face and enamel brick are selling throughout the brick world on a good market, but prices show no disposition to stiffen. There is likelihood, however, that the conditions which have prevailed through the past sixty days will last through August at any rate, and perhaps longer.

Tile is selling with more than ordinary activity, and prices are held firmly up to quotations. The situation offers nothing unusual or in any degree sensational. With buyers taking about all that are offered, the market is likely to remain in good position indefinitely.

It is interesting to note that the Sayre & Fisher Company, the American Enamel Brick Company and Carter, Black & Ayres are making preparations for an extraordinary fall demand for enamel brick. They probably have received reliable information from architects and other respecting this point which encourages them in the belief that this will be true. Conditions are improving in this branch of the business almost everywhere, but prices as yet have not advanced.

BURTON.

GYPSIES HOLD UP BRICK MANUFACTURER.

John J. Rose, a wealthy brick manufacturer of Roseton, N. Y., near Newburgh, was autoing toward Roseton the other night, accompanied by a friend, when their car was suddenly halted by a large rope suspended across the road. As quick as the car stopped it was surrounded by gypsies, who had been hiding among the trees and bushes. Male members of the tribe compelled the automobilists to hold up their hands while the gypsy women rifled their pockets. As soon as the victims were allowed to go they notified the officers, who raided the gypsies' camp.

TAPLIN-RICE-CLERKIN COMPANY VICTORS IN INFRINGEMENT SUIT.

A very important suit was decided in the U. S. Court of Appeals at Cincinnati, Ohio, July 12, by Judge Severence Warington. The Twentieth Century Heating and Ventilating Company, of Akron, Ohio, sued the Taplin-Rice-Clerkin Company, of Akron, Ohio, in the U. S. Court, Northern District of Ohio, about three years ago, on an invention claimed to be owned by complainant company, covering certain grate construction and attachments.

The case was first tried before Federal Judge Taylor in June, 1909, and decided by him in favor of the defendant, the Taplin-Rice-Clerkin Company. The complainant, the Twentieth Century Heating and Ventilating Company, not satisfied with Judge Taylor's opinion (which was a very broad, comprehensive, plainly worded opinion, and to the point), appealed the case to the U. S. Court of Appeals at Cincinnati, Ohio.

The case came up for hearing in April last, and, after carefully reviewing the whole case, the Court of Appeals decided that the defendant, the Taplin-Rice-Clerkin Company, did not infringe the complainant's construction, and to ones who are interested a copy of the opinion can be obtained from the Taplin-Rice-Clerkin Company at Akron, Ohio.

This is a great victory for the defendant, the Taplin-Rice-Clerkin Company, who have always claimed to be "original" in all stoves, furnaces and machinery construction, and claiming never to appropriate "old, copied construction" as used by others; in other words, not "imitators," but rather "leaders" in improvements.

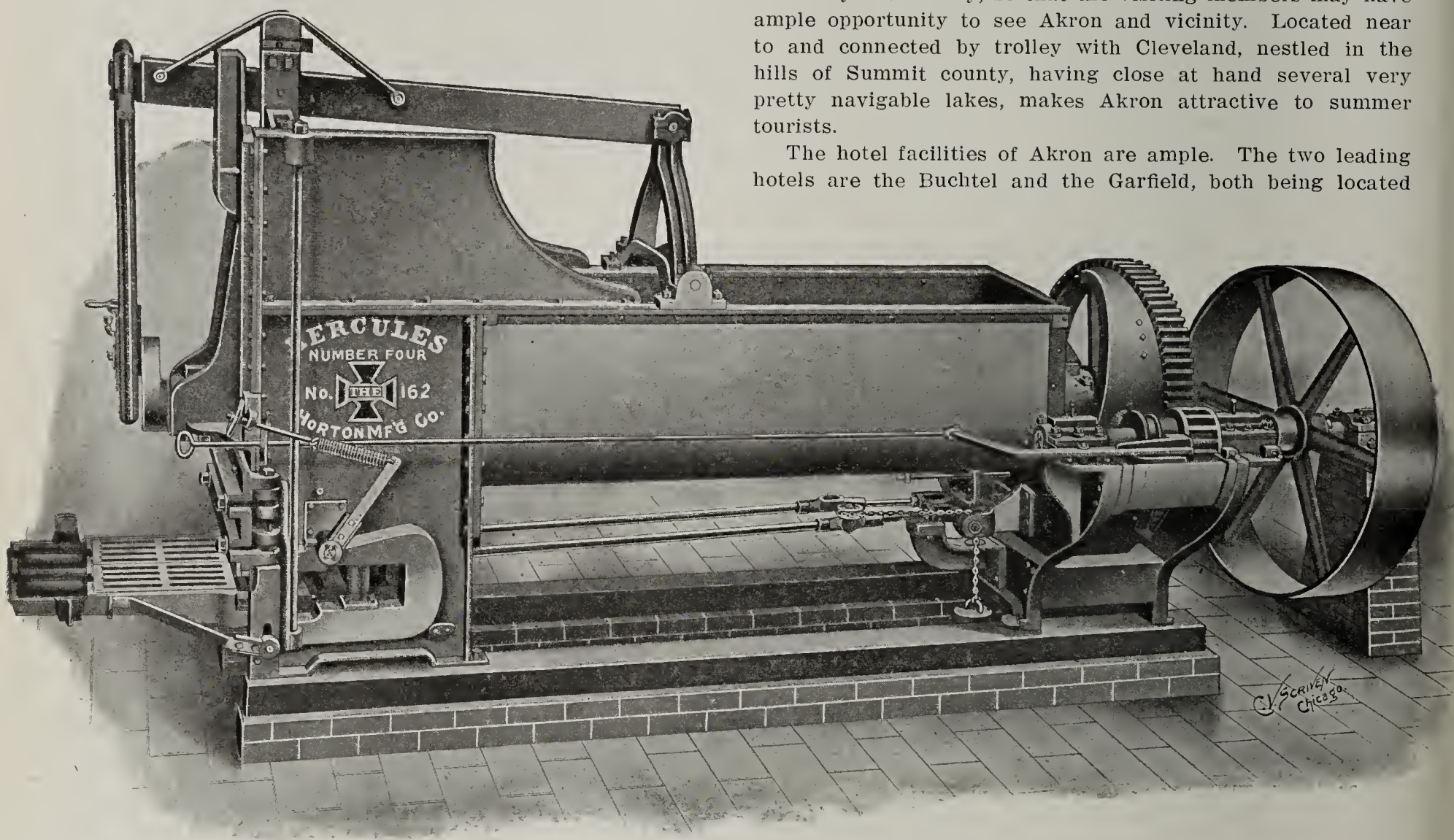
It is learned on good authority that the defendant, the

Taplin-Rice-Clerkin Company, having been injured in their business, will bring suit for the sum of \$100,000 for damages against the complainant company.

No doubt it will be a long-drawn-out suit, and will be watched by interested parties as to the final outcome.

THE RAYMOND "HERCULES" SOFT MUD BRICK MACHINE.

PERFECTION is rarely attained, though striven for incessantly. A mechanical device that seemingly works to perfection is quite frequently improved and made more efficient or durable by the strengthening of some feature or detail. The Raymond "Hercules" brick machine, which we illustrate, is a case in point. In its improved form it is now offered to the trade as a perfect machine of this type. It is made in sizes to suit either the large or small capacity plant, and is sold under a definite guarantee by the C. W. Raymond



The C. W. Raymond Company's Large Capacity Soft Mud Brick Machine.

Company, Dayton, Ohio, who make all manner of brickyard supplies, including brick molds, dumping tables, mold sanding machines, conveyors, soft mud pug mills, dumping cars, hoisting apparatus, tempering wheels, kiln doors and irons, etc., etc., etc. The reader is requested to refer to their ads. on pages 117, 118, 119 and 120, and to write them for prices, or for any information desired relative to machinery, dryers or kilns.

ARE ALL THE GOOD INDIANS DEAD ONES?

Will we have to put a new interpretation on that famous saying that a good Indian is a dead one? From the scandal that has been stirred up it looks like some of the live Indians have been good picking for politicians. It may be that while physically alive they have been mentally slumbering, and the phrase will still apply with a modified meaning. Then, the question is, What constitutes a good grafter?

PROGRAM OF MIDSUMMER MEETING, AMERICAN CERAMIC SOCIETY.

THE SUMMER MEETING will begin Wednesday, August 17, 9 a. m., at Akron, Ohio. Akron, while not a large clayworking center, has within her corporation boundaries several clayworking industries. Many lines of ceramic interests are here represented, among them being several stoneware factories, making staple, chemical and specialty stonewares, earthenware, electric porcelain, sewer pipe, fireproofing, building and paving brick. Aside from clay industries, Akron has such extensive rubber factories that she is known as the rubber center of the world. As a city Akron is one of which Ohio is justly proud. Her rate of growth is astonishing; and while growing rapidly, she is maintaining a grandeur in homes and parks for which she is well known and which is made possible by the wealth in her factories.

This summer meeting has been planned for Wednesday, Thursday and Friday, so that the visiting members may have ample opportunity to see Akron and vicinity. Located near to and connected by trolley with Cleveland, nestled in the hills of Summit county, having close at hand several very pretty navigable lakes, makes Akron attractive to summer tourists.

The hotel facilities of Akron are ample. The two leading hotels are the Buchtel and the Garfield, both being located

near the "loop." The Society will make its headquarters at the Buchtel.

Arrangements are made for an informal social meeting on Wednesday evening at the Buchtel Hotel, at which time the Akron clayworkers are invited to meet with the visiting members. There will be no formal meetings of the Society.

Barberton is a suburb of Akron, with half-hour trolley service.

Visiting members are advised to secure rooms (American plan only) for Wednesday and Thursday nights. All meals except Friday noon will be taken at the Hotel Buchtel.

Itinerary.

Wednesday, August 17, East Akron.

9 a. m.—The Robinson Clay Product Company, Plant No. 1 (stoneware).

1:30 p. m.—The Summit China Company (earthenware).

3:30 p. m.—The American Sewer Pipe Company (sewer pipe).

4:30 p. m.—A. J. Weeks Stoneware Company (chemical stoneware).

8:30 p. m.—The Buchtel Hotel.

Thursday, August 18, South Akron.

9 a. m.—The Goodrich Rubber Company (rubber products).

1:30 p. m.—The Windsor Brick Company (building brick).

2:30 p. m.—The J. L. Camp Brick Company (paving brick).

3:30 p. m.—The Colonial Sign and Insulator Company (electrical porcelain).

4:30 p. m.—The American Sewer Pipe Company or the Robinson Clay Product Company, Plant No. 2 (stoneware).

Friday, August 19, Barberton, Ohio.

9:30 a. m.—The Babcock & Wilcox Company (steam boilers).

1:30 p. m.—The Diamond Match Company (matches); the American Sewer Pipe Company (sewer pipe).

THE "DON'T NEED TO" THEORY EXPLODED.

The following interesting skit was written by Wilbur D. Nesbit and copyrighted by the Mahin Advertising Company, of Chicago. It is clipped from the August number of the Mahin Messenger, and tells an interesting story in a forceful way. Advertisers may well ponder the underlying thought seriously. As some wise sage has said, "The time to advertise is all the time." Those who do so do not have to "come back," for they are always in condition.

In a recent debate at Reno Mr. James Jeffries failed to convince Mr. John Johnson.

Some seven or eight years ago Mr. Jeffries was the leading man in his line of work. Business was good and his profits were big.

Having all the money he could handle at the time, he concluded to take a rest.

To be sure, he planned to get into the field again at the proper time.

But everything was rosy, and there really seemed no good and sufficient reason why he should spend so many hours a day keeping his muscles lithe and strong and his wind good and his heart and nerves in trim.

Eventually the meeting with Mr. Johnson was arranged. Mr. Jeffries was still tolerably content with what he had done. (Brother, a has-done is about as bad as a has-been.)

Mr. Jeffries did not care to stand up in the training ring and punch and take punches. He did not see any necessity of practicing side-steps and feints and rushes.

He knew all about them. Why, seven years ago he had done all that he ever needed to do.

Mr. Johnson did not overlook the boxing and the wrestling and the clinching and the side-stepping, etc.

As a result, Mr. Jeffries received Mr. Johnson's compliments on the point of the jaw, and his business career closed.

Advertising a business is the training of that business.

Advertising keeps a business healthy.

It tones up its liver, strengthens its biceps, steadies its heart and keeps its nerves in order.

Once in a while a man decides that he is doing so much business that he can stop advertising for a while and run on momentum.

Momentum is the gradual process toward a full stop.

The momentum business is usually prematurely full-stopped by the straight left jab of the well-trained competitor who finds his opening in the fifteenth round.

If you want to stay in business stay in the advertising field.

No matter how much business you are doing, keep up the energy that makes it.

You might as well cut off your legs because you are running well in a foot race as to cut off your advertising because your business is too good.

You might as well tell the insurance man that you are so healthy you will drop the policy for a few years as to stop advertising because the orders are piling up.

"Don't need to" is the eventual preliminary to "Can't do it."

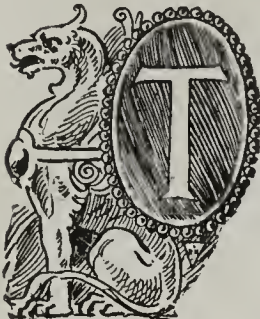
The only man who doesn't need to advertise is the man who has retired from business.

The only policyholder who doesn't need to pay his premiums is dead.

Mr. Jeffries doesn't need to train any more. He is licked.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF ST. LOUIS.



HERE IS a fair amount of business being done by the St. Louis brick manufacturers. While the various yards are not pushed at all, they are working right along in a moderate way, turning out brick and selling them. As a rule there the year, and the present season is no is a let-up in the demand at this time of exception to the rule.

Prices are about the same that they always are. Merchantable brick are quoted at \$7.50 to \$8.00; ordinary brick, \$8.25 to \$8.50, and strictly hard at about \$8.75. Other kinds of brick remain at about the same figure at which they are usually sold.

Building permits for July showed a considerable increase over June, but were not up to July of last year nor the year before. A total of \$1,976,350 of building was authorized last month, against \$1,884,013 for June. In July, 1909, permits aggregated \$2,066,059, slightly over \$89,000 above the report for last month. In July, 1908, with several big buildings, the total was \$2,781,528. The figures for last month include no large buildings, and because of the good showing on small structures exclusively indicates a healthy condition.

Eighty new brick flats were erected, most of them double; an even hundred brick dwellings; ninety-one frame dwellings, and three tenement houses, the latter averaging \$35,000 each. Twenty-seven brick and twenty-three frame dwellings were remodeled and alterations for improvements were made in eleven brick tenements.

New buildings last month, totaling 602, cost \$1,861,513, against \$1,415,618 for new buildings in June.

The fight between two factions of property holders in East St. Louis as to whether brick or creosoted wood blocks be used in street improvements on certain streets, continues. There is a pretty even division in sentiment. The city engineer says, however, that if brick is used in the section in question the cost will be \$16,000, and if wood is used the cost will be \$25,000. Another hearing will be had and the question then decided, it is thought.

Lucien Blackmer, a pioneer citizen of the city, father of Clarence E. Blackmer, president of the Blackmer & Post Pipe Company, died a few days ago. He was born in Vermont 90 years ago. He came to St. Louis in 1840, but returned to Vermont in a short time. He came back in 1847 and had remained here ever since. He became wealthy as a farmer.

George W. Jones, secretary of the Evens & Howard Fire Brick Company, reports business as normal for the season. He looks for a good business later on, when the season fairly opens up, because of the numerous inquiries that have been coming in. These inquiries are so many that they are bound to develop business. Now the sewer pipe department of the company is doing better than the other departments. The fire brick is waiting for several big plants to be started that are now contemplated.

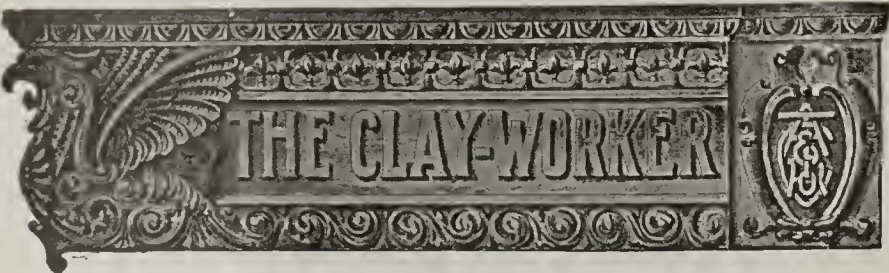
The Laclede-Christy Clay Products Company report a satisfactory business for this time of the year.

The St. Louis Vitrified and Fire Brick Company is well pleased with business conditions, considering this is the season of the year when business is usually quiet.

Anthony Ittner, president of the Anthony Ittner Brick Company, says they are making brick right along and are selling them.

Business is not rushing, but it continues to move along in a moderate way, with the outlook most encouraging for a good trade in the fall.

A SAINT.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIV. AUGUST, 1910. No. 2.

CURRENT COMMENT.

All kinds of cooling drafts are welcome during dog days—propelled, induced, natural, or those sought for by lakeside and seashore.

* * *

All the signs point toward pretty heavy building operations this fall, and they should begin to liven up pretty soon after vacations are over.

* * *

Blessed are the ignorant, for they have got a lot to learn; but what they have to learn is nothing compared to the ignorance a man has to get rid of who thinks he is smart.

* * *

When a business man is in deep water it cannot be said of him that he is getting along swimmingly, but then business is not a vacation jaunt anyway, so why make such comparisons?

* * *

Yes, these are dog days, but that doesn't mean that the under dog is going to have his inning right now. He will get our pity just as he always has, and will have to keep scrambling.

* * *

While the business men of erstwhile steady traits at work go fishing and frolicking these days, politicians go still hunting, and probably in each case there is about as much of the real truth told when they all return.

* * *

Speaking of the monorail, over in China they have invented a jinrikisha with only one wheel. Evidently the American gin rickies have never been introduced to the coolies, or else they couldn't keep a vehicle like that standing up.

* * *

There are two important cities clamoring for a big exposition to be held to celebrate the opening of the Panama Canal in a few years. One is in the South and one in the West. No matter which has it, or both, we hope the clay products

man will be ready and on hand with the most interesting display of offerings to be found.

* * *

To hear the railroads tell it, they never issue too much capital stock, and are never permitted to earn enough dividends on the stock. To hear the people tell it—well, that's another story.

* * *

Successful brick burning may often depend as much on the man in charge as on the kind of kiln. The answer is, have both—the best kiln you can get for the work, and the best man in charge of it. It is easier said than done, but it is good argument just the same.

* * *

The grade to give tracks through drying tunnels may vary with the equipment, but given a proper equipment of trucks it seems a comparatively easy matter to adjust the grades until the work of drawing out is made much less burdensome than if no regard is given to this point.

* * *

With all the talk we have had for the past year or two about forest conservation and protection, it seems that this year will go down in history with a fair share of destructive forest fires to be regretted. It is a pity our forest protection machinery has not been gotten in such shape as to prevent this waste by fire.

* * *

This is a world of seeming contrariness. We tell the new man going into the brick business to go slowly and feel his way cautiously, and then we turn around and tell the old heads in the business to get up and hustle and stir things around instead of going to sleep on the job. Yet, strange as it may seem, these two opposing bits of advice are both good.

IT'S GRANDPA RANDALL NOW.

The advent of the first grandchild brought great joy to the home of Mr. and Mrs. T. A. Randall, July 22. The N. B. M. A. has a granddaughter, the mother, Mrs. Edna Randall Gould, having been formally declared the "Daughter of the Association" many years ago. Being mindful of this fact, President Will P. Blair left a bouquet for Miss Adelaide Gould, with a card bearing the following inscription: "To Adelaide, Granddaughter of the Association, from the President, Will P. Blair."

CONCRETE ADVOCATES PEEVISH.

Some of the concrete advocates and boosters are growing real peevish these days. They have even reached the point where they lament because in their mind the brick men are lacking in a proper sense of humor. One of our contemporaries makes a remark that he thinks the brick men's funny bone is vitrified, or something of that kind, because they fail to see the funny side of things. Now, really, it isn't lack of humor in the brick men. It is more a matter of peevishness in the concrete men, because they have had to trim down their claims, shorten sail, and quit claiming the whole world, as they have so many shortcomings and failures pointed out to them. We feel like suggesting for the consolation of some of them that are suffering from this retrograde movement of enthusiasm about concrete that those who have exercised their literary ability in boosting, turn this same talent into use in producing a book of consolation, a sort of Pilgrim's Progress written backwards, like the crawfish travels, illustrating different mental altitudes and conditions encountered in the retrograde movement back to safe ground. Some of them can be well placed right now into what might well be termed the Peevish Marshes, which could be likened to the Slough of Despond, only it is a retrograde movement instead of a forward one. Whether or not they will ever find the Delectable Mountains going backwards is a question that will

have to be decided afterwards, but it is safe to say that this retrograde movement, if followed long enough, will put them on safer ground, where there will be less disappointment and less peevishness. Meantime there is but little need for these disappointed advocates of concrete to fret over the probable condition of the funny bone of the brick people. They may not laugh every time it looks like they could. Some of them may even be restrained out of respect for the feelings of others who are suffering disappointment. Some may be influenced by the sentiment expressed by Admiral Schley when, after the wrecking of the Spanish fleet, he said: "Don't shout, boys; they are dying."

"TABIQUE" WALLS IN CHILE.

Down in Valparaiso and Santiago, Chile, they are doing quite a lot of building these days, according to consular reports. These towns are being reconstructed on new plans, necessitating a practical rebuilding of a whole lot of the territory, and there are some peculiar forms of construction reported. It is said that there is some concrete work, but not much of it. Many of the better buildings are built of brick and plastered over on the outside with cement, while many of the larger dwellings have what is called "tabique" walls. These walls are made by using studding like a frame wall, only it seems like they use 4x4 for studding, which is placed 16 inches apart. Then the spaces between the studding are filled in with sun-dried brick. After filling in this space, wires, evidently of the type we call bale wire, size 14 to 16, are run around this wall inside and out about 6 inches apart from top to bottom. The wall is then plastered over with mud or cement. The report does not give any specific information as to the kind of clay used for making these "tabique" walls. That is, the exact nature of it or the climatic conditions that make it practical to use merely sun-dried brick. It surely doesn't rain much down there, or else they have a mighty good clay—clay that would make the average brick man in this country dance a jig and get busy at erecting an enormous plant.

A CONTRAST IN WAGES.

In the laying of brick the fraternity has been confronted with a high scale of wages for many years in this country, and not merely theoretically, but actually. The wages are so high that at times it seems to interfere with the more extended use of brick in ordinary building operations. Incidentally, when there is a tariff debate up, or something of that kind, we hear about what is termed the pauper labor of Europe and Asia. There is before us now a schedule of wages paid in Asia Minor, contained in one of the recent consular reports, that furnishes about as striking a contrast in wages as one can find. The following is given as the scale of wages for the more important occupations and trades in the Turkish province of Asia Minor: Carpenters, 32 to 56 cents per day; bricklayers, 40 to 48 cents; bricklayers' and carpenters' assistants, 20 to 28 cents; common laborers, 4 to 12 cents. A number of other occupations are given, running about the same comparative ratios, and we must bear in mind that this is not the hourly schedule that we have here, but the daily schedule, and it is said that these wages are more than a third greater than the wages were five years ago. We have here, therefore, a schedule of wages for bricklaying that only figures about one-twentieth of the price paid in this country. It is no wonder that some of those people come here, and it might be suggested that one good way to solve the high cost of bricklaying problem would be to import more of such bricklayers. But the trouble is that no sooner do they get here than they get into their system some of the atmosphere of independence that pervades this country, and personal liberty, which, combined with some of the bad blood of the old coun-

tries, make a turbulent combination that is hard to handle. It is enough to make an American bricklayer feel like he is a millionaire, however, to look at the meager wages received for his trade in some of the old countries.

TRACTION MOTORS AND MOTOR TRUCKS.

When the motor vehicles built for pleasure and luxury quit usurping so much of the attention of the motor world, or when the manufacturing capacity in motors increases to the point where those on pleasure bent will be taken care of without taxing the capacity of the industry, there is no telling to just how many practical uses the motor idea may be put in the industrial world. In speaking of the motor idea here, what is meant is distinctly the class of motors using explosives for power, such as gasoline and alcohol. Already we are confronted with quite a wide range of uses to which they are being put that no one probably ever thought of up until the last few years. In some instances they are taking the place of the well-known type of coal-burning locomotive engines for traction purposes, especially for tram work, for hauling clay and other work in this class. There is quite a wide field here, and then at the other end there is a field for development in heavy motor trucks for handling brick and delivering them. Those brick plants located in or near large cities, where they make delivery on the job of brick and other clay products, may well be looking into the matter of heavy motor trucks for this purpose now, not only because it shows enterprise, but it is maintained that where the right kind of a truck is secured it means a good business investment, just the same as it pays to invest in labor-saving machinery of the latest type in the plant itself.

We are just beginning to pass the experimental stage and enter into the industrial field proper with the motor idea. So the development that may take place in the next few years will likely be startling to many, and there is enough in the present trend and the progress already made to sound a loud, insistent call for all of those who are enterprising and strive to keep up to date to get into the push and investigate thoroughly, so as to keep posted on the progress of the motor vehicle in the industrial world. It pays to be up to date and among the first to introduce changes and innovations. It not only gets one recognition as being a leader and the prestige that goes with it, but it helps keep one ahead of the procession and in position to get the cream of the trade in every way, both in preference and in the way of profits. No one should take up with an idea of this kind blindly or without thoroughly investigating it, and a testing and understanding of weak points, because there is no perfection in anything. Yet, because there are weak points is no reason for ignoring the good ones. So, the best tip we can see is to investigate everything that comes along thoroughly, and when you see something coming along that looks good, make a try at it. It is better to make a few bad investments than to sit still and let things pass.

TRADE LITERATURE.

THE ARNOLD-CREAGER COMPANY, of New London, Ohio, has recently mailed the trade their latest catalogue, which is attractively printed on a high-grade white enamel paper. It is unusual in the fact that the cover is of the same material as the body, and contains on the title page a facsimile typewritten letter, with letter head of the company and signature of the president. This circular letter points out the purpose of the catalogue, telling that it is but a twenty-four-page bulletin, and does not contain all the lines and supplies shown in the annual catalogue, which will be mailed on request. However, this catalogue is filled with interesting descriptive matter and illustrations of their standard brick and tile machines, sanders, pug mills, granulators, elevators,

double function winding drums, cars, cutting table, trucks, wagons, knives, edgers, revolving dump tables, beamings, kiln doors and frames, furnace fronts, grates, kiln covers, bands and steel barrow wheels. The body of the catalogue is printed in two colors, black and red. A large double page insert shows to good advantage their large "Grand Automatic" No. 509 brick machine, and a blue print of an elevated plan showing complete installations of their machinery in a brick plant. If you are thinking of buying any machinery or supplies for a soft mud plant, you should write the Arnold-Creager Company, of New London, Ohio, for this excellent catalogue.

THE BROWN INSTRUMENT COMPANY, of Philadelphia, has compiled a valuable catalogue known as catalogue No. 3, the body of which contains 46 pages of interesting matter, divided into two parts, the first being devoted to descriptions and illustrations of their indicating, portable and recording electric pyrometers, charts, temperature and draft curve of kilns, thermo-couples, protecting fire brick, porcelain, and quartz glass tubes, wiring, cases and switchboards, while the second half gives detailed illustrated descriptions of their radiation pyrometers for measuring high temperatures, and a list of the prominent concerns using their various instruments and supplies, concluding with nine pages of testimonials and a page devoted to temperatures by latest scientific investigations on the melting points of metals, and finishing temperature for various manufacturing processes, including all clay wares. This is a very valuable catalogue, and should prove interesting to every clayworker. If you desire a copy, address the Brown Instrument Company, 311 Walnut street, Philadelphia, Pa.

TARIFF INTRICACIES.

A Tariff is a simple thing;
It seems surpassing queer
That men so many words should bring
To something that is clear.
In traffic I'm engaged, you see,
And doing very well;
Let all things be entirely free
Save those I have to sell.
Or take it 'round the other way,
And view both sides with care,
That none may have a chance to say
That I have been unfair.
If broadcast duties you impose,
Just be discreet and try
To tax all articles save those
That I'm compelled to buy.
—Washington "Star."

THE MAN OF CHEER.

I don't know how he is on the creeds,
I never heard him say;
But he's got a smile that fits his face,
And he wears it every day.
If things go wrong, he doesn't complain—
Just tries to see the joke.
He's always finding little ways
Of helping other folk.
He sees the good in every one,
Their faults he never mentions;
He has a lot of confidence
In people's good intentions.
You soon forget what ails you
When you happen 'round this man;
He can cure a case of hypo—
Quicker than the doctor can.
No matter if the sky is gray,
You get his point of view,
And the clouds begin to scatter
And the sun comes breaking through.
You'll know him if you meet him,
And you'll find it worth your while
To cultivate the friendship of
The man behind the smile.
—Ruby E. Hines, in Progress Magazine.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy
Engineering Company.

[See page 207.]

FOR SALE, WANTED, ETC.

FOR SALE—In first class condition,
Centennial Brick Machine with lubri-
cating die, extra front and dies for hol-
low ware and drain tile.
ALFRED CLAY CO.,
7 1 d Alfred, N. Y.

WANTED.

A first-class, thoroughly experienced tile
man; one who knows how to make and
burn drain tile, as well as handle men.
We have a clay soil, down-draft kilns,
and a tunnel dryer.
Man must be married, and invest from
three to five thousand dollars in this prop-
osition.
We have one of the best things in cen-
tral Ohio.
Need man by the first of September.
References required. Address
BOX 8—X. Y. Z.,
8 1 d Care Clay-Worker

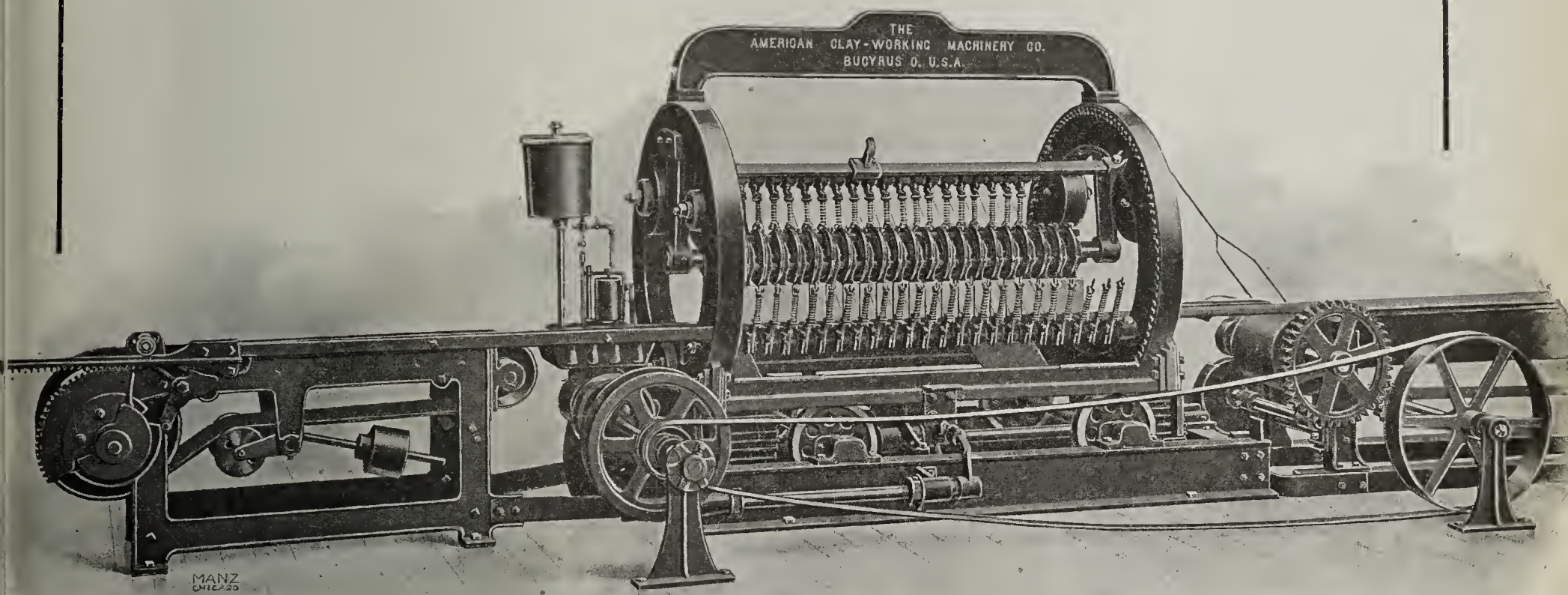
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pages 197-199.

"A Quality Above All Others" in Clayworking Machinery.

Automatic Cutter

The accompanying cut shows our No. 20 Automatic Cutter, which is one of half a dozen styles of automatic cutters we build. This cutter is simple, durable, accurate and rapid. It is compact, occupying the minimum of space, and overcomes the swelling and buckling of the bar of clay.

The rotary wire frame is driven by two large pinions in the center of the machine. These pinions are driven by a worm gear and worm, which gives a steady motion to the wire reel. The worm, or driving shaft, is set at right



angles with the cutter, and is driven with a friction clutch pulley. This friction clutch pulley is operated by the movement of the carriage, which starts the wire reel in motion, and it is thrown out of gear by the rotating wire reel.

The friction clutch pulley dispenses with the objectionable jaw clutch, and by its use it is possible to run the cutter at a greater capacity.

The cutting table is driven from a jack shaft. This arrangement dispenses with the dangerous tumbling shafts that are generally used. There are two sets of improved toggle wire fasteners, which permit more time for the wires to pass through the column of clay and leave them at rest in a horizontal position, which is the most advantageous position in replacing broken wires. This can be done without stopping the machine. The wires have a shearing action when passing through the bar of clay, making as perfect a cut as can be made with a wire-cut machine.

The wires are prevented from cutting the bar of clay before the proper time by means of a simple band brake and brake wheel. The carriage is kept in register with the moving bar of clay by a most simple register device. There is rotating motion to all its parts, so that any wearing of these parts does not affect the accuracy of their operation. The platens can be changed for cutting different thickness in a few minutes. The wire reel is carried on six track wheels, which are provided with eccentric pins to take up the wear. The cutter is built high-grade throughout.

The American Clay Machinery Company
BUCYRUS, OHIO, U. S. A.



"A Quality Above All Others" in Clayworking Machinery.

"A Quality Above All Others" in Clayworking Machinery.

Press Made Fire Proofing

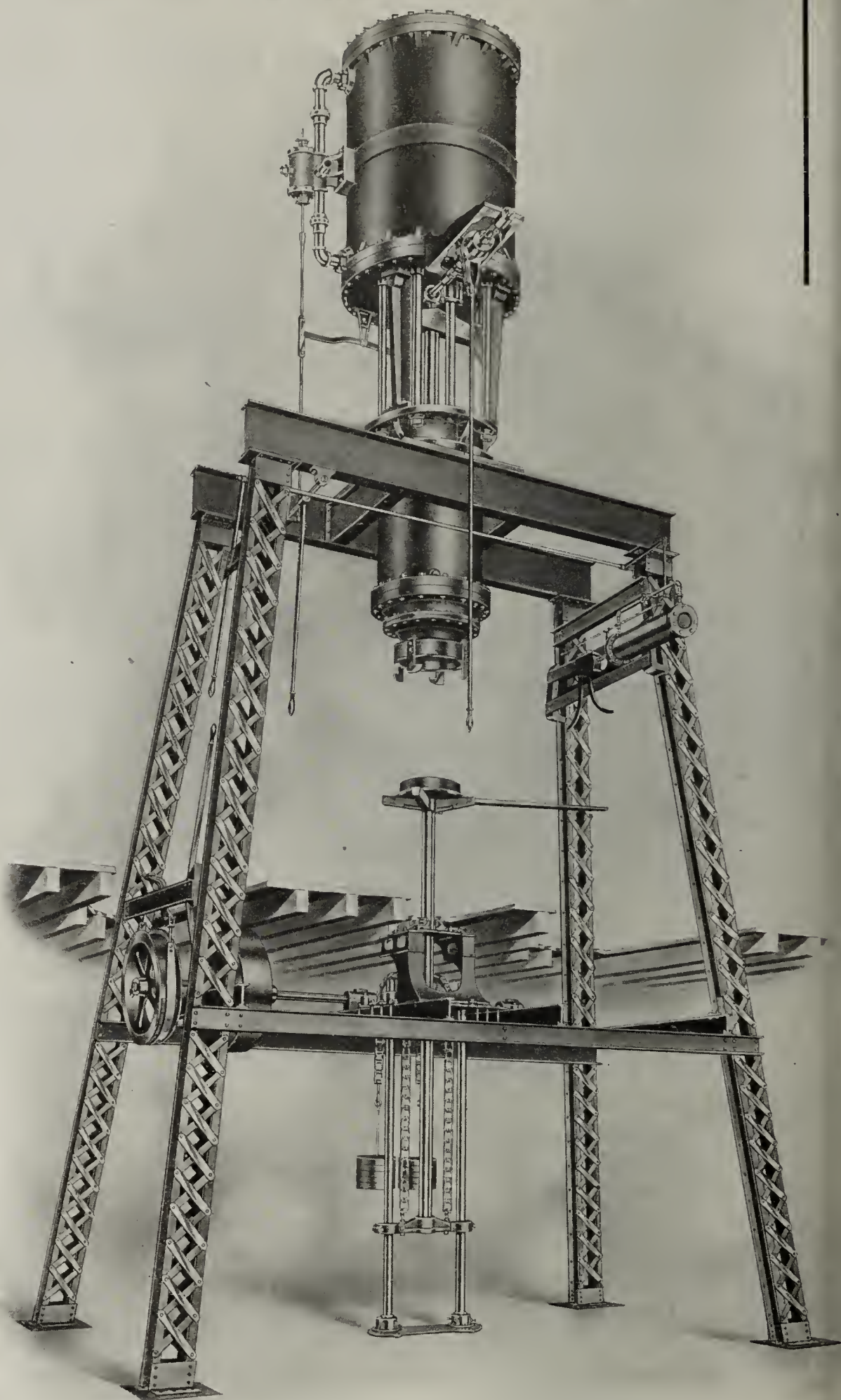
For the profitable production of sewer pipe, fireproofing and other clay products our Sewer Pipe Presses are superior.

The demand for better machinery in modern clayworking methods has led to almost a complete revolution in the building of this class of clayworking machinery and appliances.

In these improvements the American Clay Machinery Company has taken a leading part. Our machinery has long been recognized as being well designed and exceptionally well built. A superior combination of methods, material and workmanship has given our line of sewer pipe machinery and appliances a quality which is recognized and which is an assurance of successful operation.

In our 52-inch Press the clay cylinder is ample and is carefully fitted and bolted, being substantially reinforced. The shafting, disc rod, connecting rods and pistons are large and made of steel; the valves are large and of approved type. In a word, each machine is, in every detail, built according to high-grade engine practice. Our line of cutters includes both automatic and hand power, and we make cars, trucks, rounders, formers, trays, turners, drums and other appliances, as well as any dies which may be required. The frames are carefully made of wood or steel, as desired, our steel channel lattice-work frame being a most substantial setting for this class of machinery.

We build every class of machinery for making all kinds of clay products by all processes.



52-inch Sewer Pipe Press, Style P.



The American Clay Machinery Company
BUCYRUS, OHIO, U. S. A.

"A Quality Above All Others" in Clayworking Machinery.

"A Quality Above All Others" in Clayworking Machinery.

American Steam Pipe Rack Dryer

(Patented)

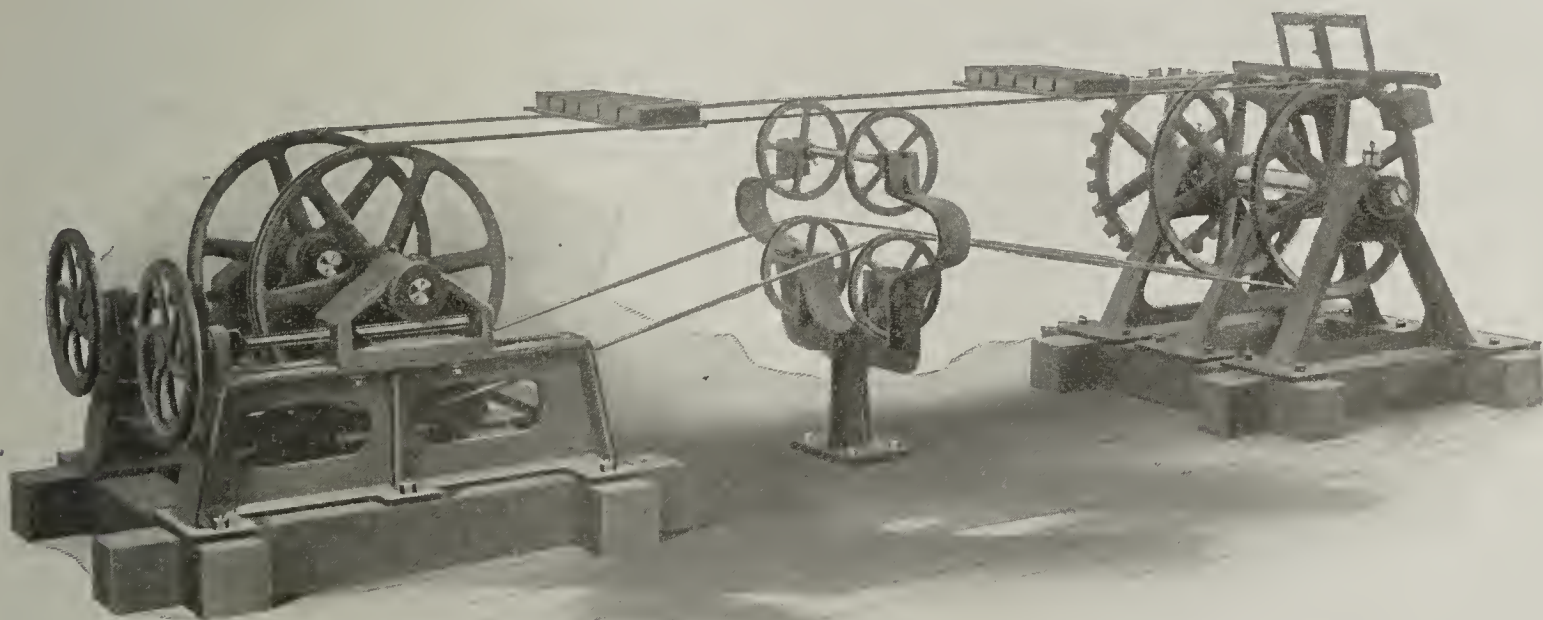
WE have just received letters patent on a number of new features in our improved Steam Pipe Rack Dryer which place it far in advance of all dryers of this class. With these additional improvements the problem of economical and thorough drying has been simplified. The American Steam Pipe Rack Dryer is making good wherever used and will be of interest to you. It costs you nothing to investigate this matter and it may be costing you a great deal not to investigate it. It is an economy in time, fuel, space and maintenance. The improved Cable conveying system which we install in connection with our Steam Pipe Rack Dryer is a feature which means much in cheaper handling of the brick from the brick-making machine to the dryer and from the dryer to the kiln. The pallets when emptied are returned by the conveyor to the brick machine.

This system cuts out all trucking from the machine to the dry racks and all wheeling from the racks to the kilns. The brick being handled on pallets at all times which insures a much better quality of brick because handling each brick by hand necessarily caused more or less spoilage and marred the brick. You are invited to investigate the American Steam Pipe Rack Dryer. It's worth your time.



Interior View of Steam Pipe Rack Dryer

We build every machine and appliance necessary for making every class of Clay Products by all processes. We are the largest manufacturers of Clayworking Machinery in the world and can therefore maintain an organization which includes the very best experts in every line of Clay Manufacturing. This knowledge is not only back of our machinery and equipment but is at your disposal for the solution of any of your clay problems.



Units of Cable Conveyor

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



"A Quality Above All Others" in Clayworking Machinery.

"A Quality Above All Others" in Clayworking Machinery.

The Users Talk About It

We are going to tell you all about this screen in five words. It is

**"Built Right
and
Runs Right"**

If you are interested in screens and want a description of this centrifugal Screen Success, we will mail you a circular about it which tells the whole story, but in this page we are going to allow the men who are using this screen to tell you how they looked for repair bills, how they searched for flaws, how they expected troubles.

They have been "through the mill" just listen to them talk about it.

"Our Centrifugal Screen screens the clay very fast. The men who operate the Screen are pleased with results."—Columbus Plate Glass Co., Blairsville, Pa

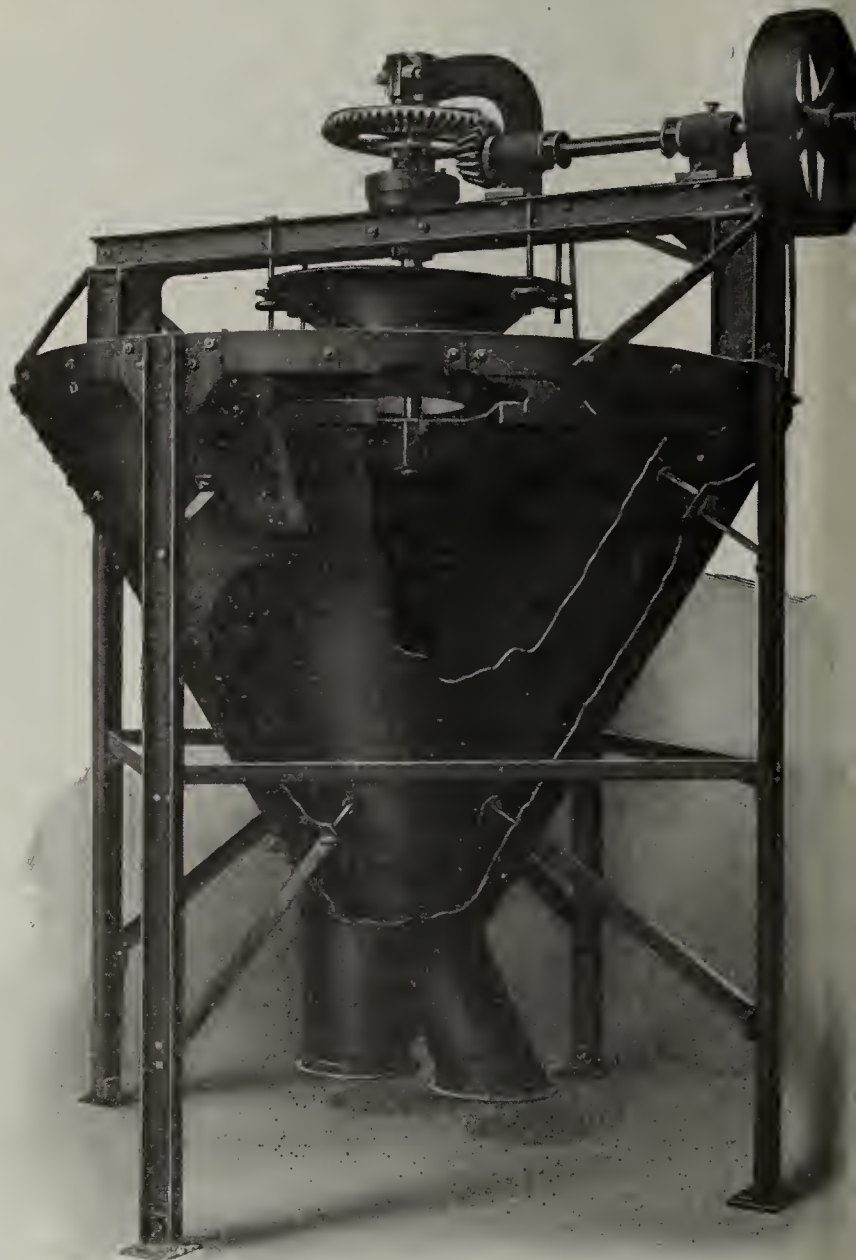
"The Centrifugal Screen has certainly surpassed our expectations. We have run the Screen 60 days without a cent's worth of repairs. We believe it will run indefinitely without repairs."—Michigan Vitrified Brick Co., Bay City, Mich.

"We have two of your Centrifugal Screens. One has more than paid for itself in labor saved. It is handling material for 100,000 brick per day. We shall use these Screens exclusively in all our plants in the future."—Coffeyville Vitrified Brick Co., Coffeyville, Kan.

The American Clay Machinery Co.,

We build every machine and appliance required for manufacturing every kind of Clay Products by any process. Fifty years of experience and attention to the need of the Clayworkers has built up a trade and an organization which is a credit to the Clayworking Industry. You are invited to use this organization and experience.

BUCYRUS, OHIO.



"A Quality Above All Others" in Clayworking Machinery.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE GENERAL conditions surrounding building in the Northwest are showing some improvement from a month ago, when the serious damage to the crop of the Northwest indicated a decided setback to commercial prospects. Now the crop is being harvested, and the worst has been discounted. As is often the case, it is found that, while there has

been a serious damage to the grain of the season, the anticipation was considerably worse than the facts justified, and there has been something of a reaction experienced. During July building conditions felt the suspense of uncertainty, and the demand for materials was materially affected. But with the opening of August there was something of a rebound, and a better feeling was dominant.

This does not mean that the conditions are wholly normal. The crop has been seriously affected, and it will result in a shortened yield and a lessened total return to the producers, and consequently to all who depend upon the crops. But there will be some recompense, for prices will be higher, and the loss will be offset to the producers in part, so that there will be at least a moderately active volume of business. And this will mean activity in moderation in building as well as in other lines.

As far as the brick business is concerned, it has never experienced much advance, and therefore need not fear much decline. But with other materials weakening the tendency will be to encourage taking up projects, and if builders who specialize in brick are alert to their advantages as to the value of brick, they have a good opportunity to make the most of the situation for the furtherance of their material. Already the reaction is apparent from concrete, while wood construction is being discouraged in every way, so that brick has the best chance of any material, if its advocates will only follow up some of the plans which have been inaugurated, such as those by the National Association. Exploiting the plans which are available for desirable brick structure can be done in every locality to good advantage. Members of the Northwestern Clay Association have told their individual experiences in inducing trials of brick buildings, when they had no such advantage as the work of the National Association gives, and they found that it was very easy to get trial structures. Once a trial structure was up, others followed as a matter of course.

Some recent publicity in daily papers in the Twin Cities called attention to the propaganda of the National Association of Brick Manufacturers for better building, and should be of material benefit to the brick industry.

The building permits issued for seven months of 1910 make a good showing, in spite of the depression which the crop damage has caused. St. Paul has had gains for five of the seven months, but the two losing months had exceedingly heavy totals to go against, and the net result is a slight loss for the seven months, the figures being \$6,242,367 for 1910, against \$6,375,195 for seven months of 1909. Minneapolis figures have been a little more favorable for the current year, showing \$9,285,435, against \$7,706,520 for seven months of 1909. The building inspector anticipates a total for the year of \$15,000,000, based upon the increase shown so far this year.

Building interests in the Twin Cities and the Middle West generally anticipate considerable benefit from the revised freight rates which are to go into effect in the fall as a result of the decision of the Interstate Commerce Commission in the so-called Spokane case. This decision calls for a general revision of rates, which will do away with the Pittsburg rate,

for instance, on iron and steel. As it now stands, Pittsburg can ship at the same rate to all points in the West as can be shipped from either Chicago or the Twin Cities, which, of course, leaves the Western manufacturers and wholesalers at the disadvantage by the fact that they have to pay freight on their raw material to their places of business, while they have no compensating advantage of lesser freight on the manufactured goods which their nearer position to the West should afford them. The new rates will give about 20 per cent. differential in favor of the Twin Cities over Chicago and Pittsburg.

The Builders' Exchange of St. Paul has just issued its seventh annual directory, covering its members, with information for the architectural and building materials interests, for the Northwest. The Builders' Exchange always takes great pains to get up a book which is serviceable, durable and attractive, and this issue is exceptionally complete in this respect.

The July quarterly meeting of the Northwestern Clay Association, which should have been held in Minneapolis, was deferred, although an informal committee meeting was held in its stead. The conditions did not justify calling a meeting during the hot weather, and it was decided to lay plans for an exceptionally good fall meeting. The program is expected to be the best which has yet been tendered the members. Secretary Axel Anderson may be depended upon to present something especially good.

F. M. Stowell, of Minneapolis, has had plans prepared by William M. Kenyon, architect, for a handsome three-story brick and half-timbered residence to be erected at Girard and Lincoln avenues, with a garage in connection. Cost, \$25,000.

Long, Lamoreaux & Long, architects, of Minneapolis, have prepared plans for an addition to the Hotel Waverly, Minneapolis, located at Eleventh street and Harmon Place. The addition will be six stories, 66x125 feet in size, brick exterior walls. Cost, \$80,000. The work will be done next year.

W. H. Eustis, of Minneapolis, agent for the Wright interests of Alma, Mich., has directed Kees & Colburn, architects, of Minneapolis, to prepare plans for rebuilding the building at Seventh avenue South and Third street, which was burned recently. The new building will be of fireproof construction, 118x154 feet, seven stories, brick exterior walls. The work will cost about \$200,000.

Buechner & Orth, architects, of St. Paul, have prepared plans for a handsome brick and stone courthouse building to be erected at Ellendale, N. D. It will be two stories and basement, 70x100 feet in size, modern throughout, costing \$100,000.

J. W. Colwell, who was secretary and manager of the Missouri Slope Brick and Tile Company, of Dickinson, N. D., was caught and killed while visiting the flour mill of the Russell-Miller Milling Company, located at Dickinson. There were no witnesses of the accident, but it is supposed that Mr. Colwell was caught in a rope drive in the mill. He was thirty-two years of age, and leaves a wife and a three-year-old daughter.

E. E. Atkinson & Co., dry goods, Minneapolis, are just completing a four-story annex to the rear of their building at Nicollet avenue and Seventh street. They anticipate the ultimate extension of the addition to a height of fourteen stories.

The Business League of St. Paul has had plans prepared by Postle, Denson & Mahler, architects, St. Paul, for a building to house small factories and to furnish them with power. The structure will be 86x300 feet, seven stories, with brick exterior walls.

Clarence H. Johnston, architect, of St. Paul, has completed plans for the proposed Young Women's Christian Association building to be erected on Fifth street, near Washington. It will be five stories and basement, brick exterior walls. Cost, \$200,000.

T. WIN.

Every time there is a good row stirred up around the seat of our National Government, we discover that some of those in public office are not entirely above reproach in their conduct outside the Congressional Record.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



NOTWITHSTANDING the fact that the building situation here has been up till a day or two ago seriously affected by the strike of the hod carriers of the city, the feeling in the brick business is decidedly better. For the first time in many months there has been an advance in price. The advance was very slight, from \$6.50 to \$6.75 only, but the fact that there was an advance at all shows that the old surplus of common brick, which has been a depressing factor in the situation for so long, has about been worked off. It is not expected that the price of common brick will advance very notably, though some other slight upward movements may come later on. Many of the yards tributary to this market are out of business, and will probably not be reopened, or at least not at this time. The demand for common brick and the prices are both too low to make the reopening of more of these plants look very attractive. Some yards are, however, unusually busy, and several have already increased their output.

The most welcome news in the San Francisco trade is that the strike of the hod carriers has been settled. This had been in progress for several weeks, and had tied up several million dollars' worth of buildings. The fact that the building permits dropped from \$2,369,818 for June to \$1,452,741 for July shows what a serious effect the difficulty had on the building of the city. The trouble arose over a demand on the part of the hod carriers for a reduction of one-half hour—from eight and one-half hours to eight hours, the regular day for other building trades. This was denied by the contractors, who held that it was absolutely necessary for the hod carriers to go to work before the bricklayers. The strike was settled by a compromise. The hod carriers who work with bricklayers or plasterers will work eight hours and twenty-five minutes per day, and others will work only eight hours. Hod carriers who work with bricklayers will get \$4 per day, and those who work with plasterers \$5 per day, as heretofore.

The Carquinez Brick Company has installed a new twelve-foot fan for carrying the waste warm air from the kilns to the dry yard of the company's big plant. The fan is placed in a pit, and gives much better results by reason of being deeper in the ground. It causes a steady flow of warm air under the tunnels of the dryer, and has very materially increased the output of the plant.

The United Materials Company, of this city, selling agents for several important manufacturers, reports that the outputs controlled by them are well sold up, and that considerable business is being done at the recent 25-cent advance.

N. Clark & Sons, extensive brick manufacturers of San Francisco, report that during the greater part of last month business was at a standstill by reason of the hod carriers' strike, but that now some little activity is being manifested. This company has secured some good contracts at Sacramento, and is having a lot of sewer pipe business for various towns. They will move about September 1 to their new three-story building with two fronts, one on Natoma street and one on Minna street, near New Montgomery street. The fronts of the new building are of white mat glazed terra cotta, with polychrome work in the cornices. The general offices of the company will be on the second floor on the Natoma street front. The building will have a hardwood finish, polished floors, and will be equipped with pneumatic tubes, elevators, and all modern conveniences. The entrance to the main office will be through a fine reception room on the ground floor. The ground floor will also contain a large display room, which will contain samples of all the lines turned out by the company, including pressed and glazed brick, architectural terra cotta, chimneys, pottery and specialties of various kinds.

The Vallejo Brick and Tile Company, Consolidated, of Vallejo and San Francisco, is still adding improvements to its plant, though the principal installation is completed. The latest improvement is a large fan for utilizing the waste heat in the dryer. The company is now chiefly engaged in making sewer brick for the San Francisco sewer system. This sys-

tem will altogether require about 30,000,000 brick, deliveries being spread over a number of years, and the Vallejo company will probably furnish the greater part of the material, as its vitrified brick are the best for the purpose produced in this vicinity. The company from now on expects to do more work in the line of paving brick, and is placing a few in San Francisco to give them a trial in competition with basalt blocks, which are very expensive.

The San Francisco Board of Public Works has begun awarding contracts for the new City Hospital buildings. The general contract for five of the ward buildings, the administration building and the nurses' building has been awarded to Caldwell & Co., at \$220,500. The chief material used will be glazed brick. Marble and terra cotta will be used for trimmings.

The Silica Brick Company, which was incorporated a few weeks ago to engage in the making of silica brick and other building materials, and for the manufacture of fire brick, at a plant to be erected near Sacramento, Cal., has already begun preliminary work at its twenty-acre site. Contracts for machinery totaling \$22,858.65 have been let, and it is expected that the first shipments will begin to arrive within sixty days. The ground is now being laid out, and a spur track is being laid to connect it with the main line of the Southern Pacific railroad. The plant will be operated by electricity. The officers of the company are: G. W. Pierce, president; B. F. Walton, L. C. Brinkmeyer and S. W. Winsor, vice-presidents; J. P. Dargitz, secretary; L. C. Brinkmeyer, manager; S. W. Winsor, general superintendent, and the Sacramento Valley Trust Company, treasurer.

The San Diego Construction Company, 1117 D street, San Diego, Cal., has been awarded a contract for a new \$120,000 theater building in that city. The exterior of the building will be of white enameled brick and the roof of tile.

The Los Angeles Brick Company, of Point Richmond, Cal., has just about completed plans for the expenditure of \$50,000 in enlarging its plant, installing kilns and machinery for the manufacture of pressed brick, fire brick, etc.

The Pacific Brick Company, of San Pedro, Cal., began the use of crude oil as fuel in its plant on July 22.

A report from Nanaimo, B. C., says that a syndicate is being formed there and at Vancouver, B. C., with a capital stock of \$40,000, for the erection of a brick plant at Nanaimo, with a daily capacity of 25,000 brick.

The House Brick Company, of Vallejo, Cal., is understood to be making preparations to begin manufacturing paving brick.

Goeller & Chamberlain, who operate a brickmaking plant near Upper Klamath Lake, near Klamath Falls, in southern Oregon, are now turning out 500,000 brick for the Odd Fellows' Hall at Klamath Falls.

The new \$150,000 plant of the Mulford-Burke Brick Company, near Newmark, in southern California, will, according to present plans, be started about August 15. The company will make vitrified brick and insulators for high-voltage power wires. The plant has seven dry kilns and four fire kilns, and will have a capacity of 12,500 bricks per day.

Plans are now being drawn by N. F. Marsh, of Los Angeles, for a six-story hotel at Ocean Park, Cal., to be constructed of hollow tile.

The Puget Sound Investment Company, of 2501-2509 Elliott avenue, Seattle, Wash., will, according to late reports, erect a brick factory near that city.

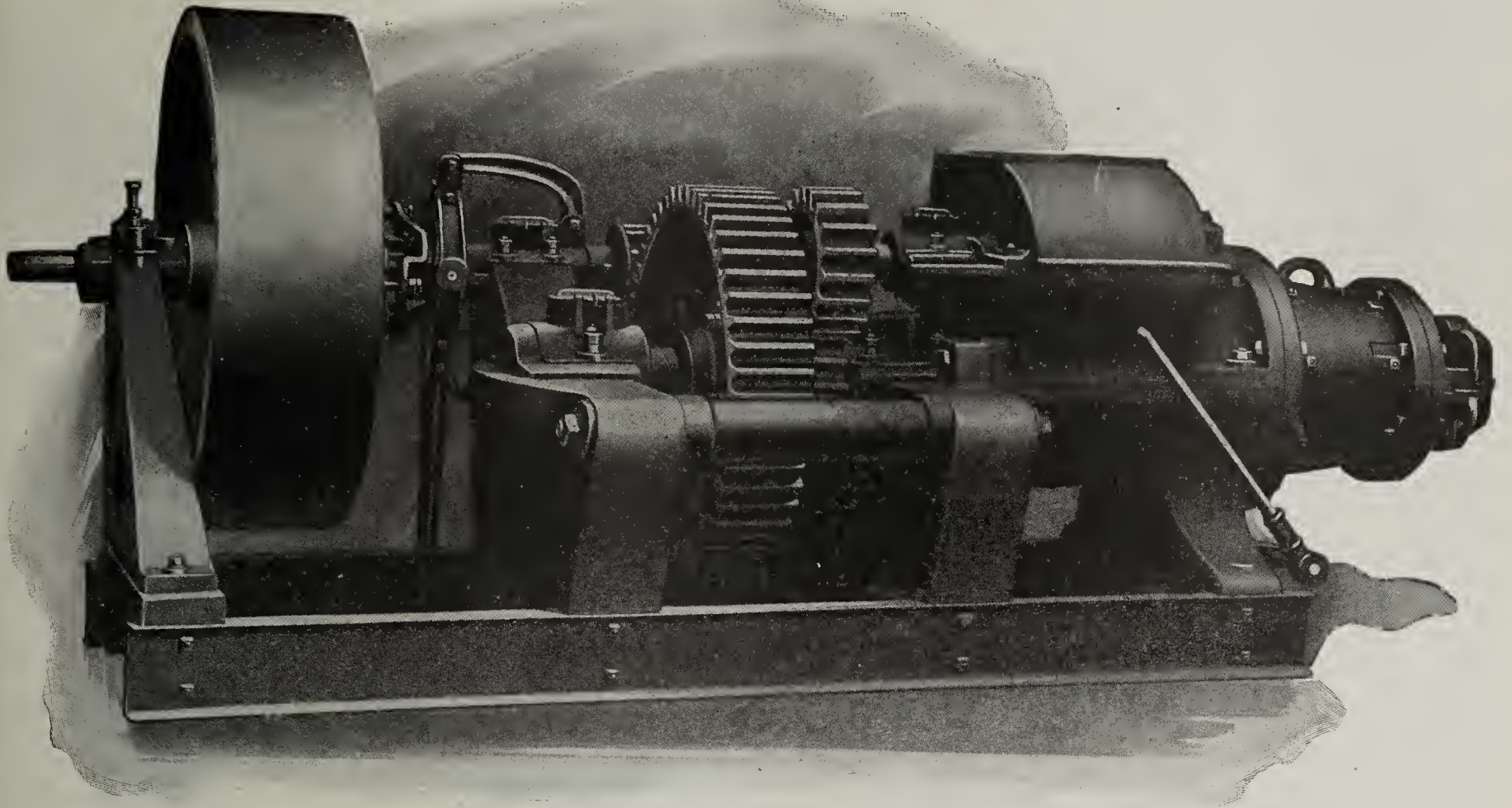
William Gunther, J. Cooke and Albert Detmerling have filed articles of incorporation for the O. K. Brick and Tile Company. The company will put in a plant and engage in the making of brick at Roslyn, near Ellensburg, Wash.

Material for the construction of the proposed plant of the Oakland Paving Brick Company, at Patterson, near Oakland, Cal., is arriving, and construction work will be started at once. It is announced that the kilns of the company will have a capacity of about one and one-half million brick. The main structure will be nearly 1,000 feet long. The machinery will be operated by electricity.

C. D. Bonney and others, of Roswell, N. M., are organizing a company, and will erect a brick and tile manufacturing plant on property near that place. Mr. Bonney and associates control a large amount of good clay land near Roswell.

San Francisco, Cal., August 5, 1910.

SUNSET.

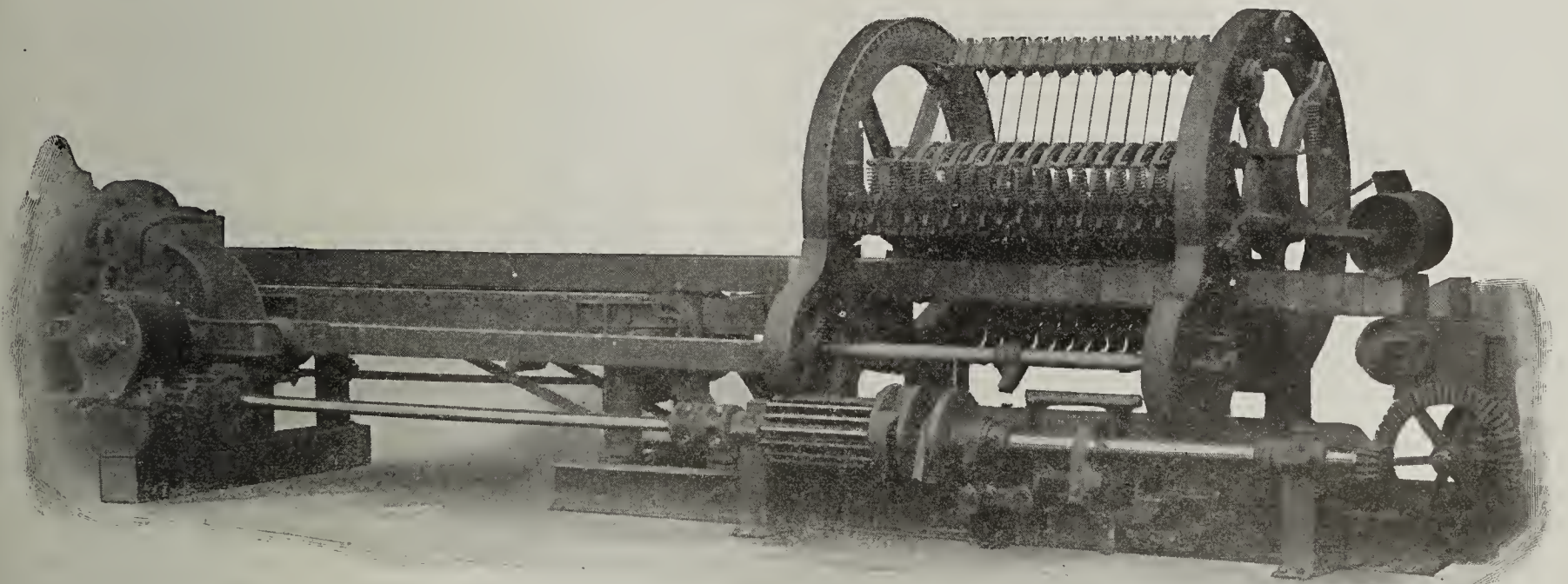


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

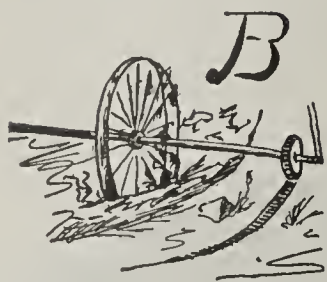
They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 232-235.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF CLEVELAND.



BUILDING OPERATIONS in Cleveland continue to bob up with pleasing regularity. Reports from the building inspector's office indicate that permits for about \$1,000,000 worth of new structures are being taken out each month. While no very large ones are being filed, there is a great variety of small projects, spread over the entire city. The brickmakers say that the demand from the supply companies and the contractors generally is very satisfactory, and while the orders are not very large, they are numerous, so that the volume is there just the same.

The volume of county road work is exceedingly large. Within the past twelve months work has been completed, started or is in progress on 132 miles of brick pavements, on concrete base, at a cost of \$2,754,000. The county now has 251 miles of paved roads outside of the numerous municipalities in Cuyahoga county—some seventeen towns and villages, and the city of Cleveland, which is the county seat. Preparations are already being made for the expenditure of about a million dollars in cash in new brick roads next year. In another year or two every road within the limits of the county will have been paved with brick, which is now the only material which is being used for this important purpose.

A number of comparatively large and interesting building operations have been announced within the past month. Some have been gotten under way, while others are to be started at once. The sum of \$81,000 has been appropriated for an eight-story annex to the New Amsterdam apartment hotel on Euclid at East Twenty-second street for the Williamson Company. George H. Steffens is architect. Shale brick and terra cotta will be used for the front, with brick for the side walls. It will have a frontage of 40 feet and will be 189 feet deep. The lower floor will be an auto sales room, and the upper floors will be subdivided for hotel purposes. The frame will be of steel, with hollow tile floors.

The Euclid Tennis Company is to spend \$64,000 for a duplicate of its building at Euclid avenue and East Fifty-seventh street. It will be of brick, with terra cotta trimmings. The Pennsylvania Railroad occupies offices in most of the existing structure, and will take possession of the addition upon its completion.

The exclusive residential structures section on Euclid avenue, between East Twenty-second street and East Fortieth street, is to be invaded by an apartment house. George R. Canfield has leased 100 feet, on which he will erect a new five-story building containing five apartments. It will be 80 feet wide and about 170 feet deep. The front will be of brick, with tile or terra cotta trimmings. It is expected to cost about \$66,000. George H. Steffens is architect for the new structure, which will be one of the most palatial in Cleveland, suites renting for \$160 a month.

The Northwestern Terra Cotta Company, through its local representatives, the Queisser-Bliss Company, has secured the contract for the seven-story addition to the Cleveland Athletic Club's building on Euclid avenue. The contract is worth about \$50,000. Shipments of the terra cotta have already begun. General contracts for the building will be let about August 20. The seven additional stories will cost, completed, upward of \$400,000. J. Milton Dyer, of Cleveland, is architect for the structure, which is to be twelve stories in height.

Work is to begin early in September on the new \$600,000 Y. M. C. A. building. It will be the largest Y. M. C. A. structure in the world, and will be located at Prospect avenue and East Twenty-second street, with a frontage on one of 153 feet and on the other of 272 feet. It will be several stories underground and eight stories above. Brick, steel and concrete

will be used throughout. Some tile and terra cotta will also be employed. Architects Hubbell & Benes have almost completed plans for it. Nearly 300 bedrooms will be provided in addition to many special features.

The sum of \$90,000 is to be spent on a new building to be erected on Euclid avenue, near East One-hundred-and-third street, for the Euclid Park Company, of which J. W. Holcomb is the active spirit. It will be three stories high, with a frontage of 85 feet and a depth of 200 feet. Brick and concrete will be used throughout.

At last the new market house on the West Side is to be completed. Bonds are being sold by which the remaining contracts will be let. These include among other things \$2,800 for tile floors and \$12,000 for booths, which will be largely of tile.

The city during the past month has approved of a bond issue of \$250,000 for a new tuberculosis hospital at the Warrensville farm colony of 1,940 acres. It will be of fireproof construction, with hollow brick walls with stucco finish. J. Milton Dyer, who is to build the new city hall this fall or next year, has also been given the work of preparing plans for the new hospital, which will be one of the most modern that money can erect.

Several contracts for school construction were let during the past month. An annex to the Glenville High School will be built by C. N. Griffin & Co. The Connolly Construction Company will erect a \$20,000 addition to the Technical High School. Contracts for two new schools costing about \$80,000 apiece were let piecemeal during the past month. The Cleveland Day Nursery and Free Kindergarten Association will erect a \$40,000 brick hospital building on East Ninety-sixth street from plans prepared by Architects Bohnard & Parsson. L. Dautel & Son have the general mason contract for the work.

Two postoffices in which Cleveland builders are interested are to be built near here. One is a \$150,000 structure for the city of Lorain, and the other is a \$65,000 building for the city of Wooster, Ohio. Bids on these buildings are to be received during the coming month. They will be largely of brick.

Considerable interest was aroused in Cleveland during the past month by the filing in the Federal courts here of a petition in voluntary bankruptcy by Harold H. Knowles, son of the multi-millionaire founder of the Knowles, Taylor & Knowles pottery works at East Liverpool, Ohio, one of the largest pottery concerns in the world. Knowles' liabilities are scheduled at \$119,634. Securities valued at \$48,000 cover \$38,000 worth of debts. The rest is unsecured. His only assets quoted were a White steamer auto and a block of stock in the pottery works. When Knowles became of age it is said he inherited several millions from his relatives.

The Hoytville Tile Company, of Hoytville, Ohio, has been incorporated under the laws of the State of Ohio at Columbus for \$40,000 by Henry Edminster and others.

The Lake Shore Brick Company, of Painesville, Ohio, has also been incorporated. It gives its capital at \$10,000. Incorporation papers were filed at Columbus by Harry E. Hammar and others interested in the new concern.

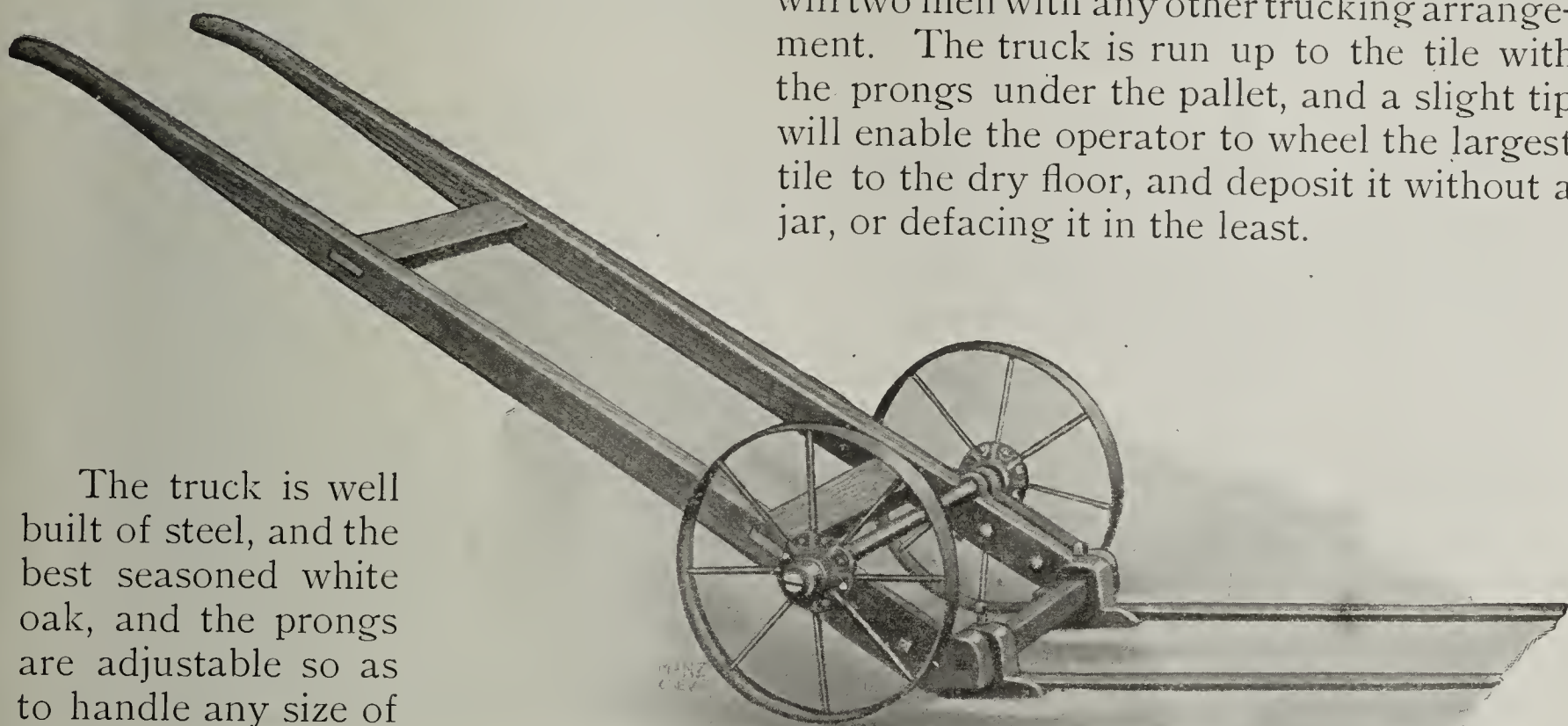
This month the Ohio Clay Company, of Cleveland, is reopening its greatly enlarged plant in Newburg, a suburb of Cleveland, after having been closed down for several months. A big addition has been built, doubling the plant's capacity. It now has a total capacity of 33,000,000 hollow brick per annum. The new plant contains one of the largest continuous kilns in the country, with two brick smokestacks about 150 feet high. It is equipped with the latest types of engines, steam presses, electric appliances for hauling, and other paraphernalia for making brick. W. C. Denison, who is president of the concern, says that the company is now the largest manufacturer of hollow brick for building purposes in America.

BUCKEYE.

As the time for another school term draws near, let us not forget to speak a word and do an act on occasions to further the good work of the trade schools.

TWO PRONGED TILE TRUCK

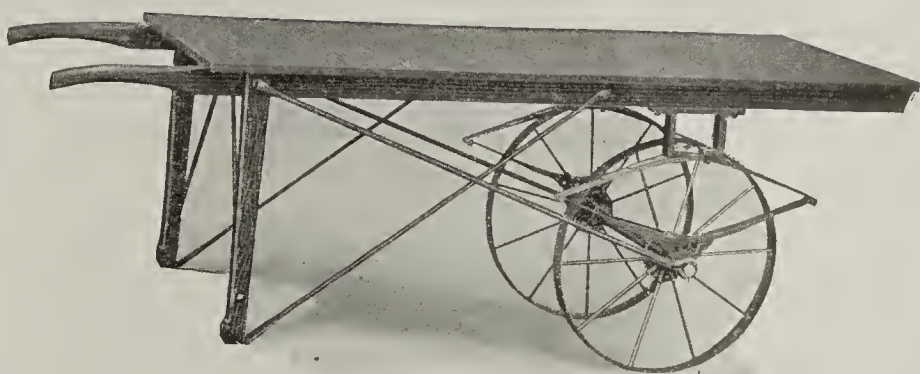
THIS truck is especially designed for the factory when large tile are made and handled on pallets, and is very useful in connection with our Vertical Attachment for making large tile, and is almost indispensable for the handling of large tile, as one man with this truck can handle more tile, and do it better, and with more ease, than will two men with any other trucking arrangement. The truck is run up to the tile with the prongs under the pallet, and a slight tip will enable the operator to wheel the largest tile to the dry floor, and deposit it without a jar, or defacing it in the least.



The truck is well built of steel, and the best seasoned white oak, and the prongs are adjustable so as to handle any size of tile.



A Strong Serviceable Barrow
(Pin or Roller Bearings)
Made of oak and well braced.



Spring Platform Truck
For carrying green tile or brick. It has two heavy springs, is well built and substantial.

The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



HE ARCHITECTURAL and fireproofing terra cotta interests report a good deal of increase in activity in their business. The National Fireproofing Company's works at Keaseby are running to their full capacity, and find it possible to scarcely more than keep up with their business at that. It was pointed out by a representative of this company that fireproofing is coming to be used so much more extensively than ever before that the demand has almost doubled within a short time. Where formerly only the larger buildings required fireproofing, very many houses are now being constructed largely of that material, and with the increased cost of lumber and the unsatisfactory action of cement in structural work this demand is quite likely to increase even more rapidly in the future. Many of the better class of dwellings throughout the eastern part of the country are being constructed of this material. The comparatively low cost and the ease of its manipulation are strong influences in its favor. According to the volume of inquiries received, the situation promises even better results in the future than have characterized it in the past. Fireproofing has become one of the principal features in the structural work of the time, and those companies, like the National, which have kept pace with the development, and are in position to supply the demand, will make much shekels during the coming few years, or more.

Mountain View has three brick plants, all of which are working to their full capacity this year. The Enterprise Brick Company employs twenty men and turns out on excellent quality of product. Its business is increasing, and additions to the plant will be required to maintain their present reputation for prompt deliveries. Oschwald & Ulrick employ sixty men in the manufacture of building brick, and their business increases rapidly, too. Close attention to the details of their business and a knowledge of the requirements of the consumers has enabled them to build up a good business in this line. The Standard Brick Company has seventy-five men at work, and they scarcely suffice to produce enough to satisfy demand. Much of the stock made at these three yards goes by train to Paterson, or other nearby towns. Little is utilized in Mountain View itself, which is merely a hamlet situated on the Erie railroad and the Delaware, Lackawanna & Western. Shipments are therefore easy, and there is little difficulty in disposing of what is made. Probably other concerns could find locations here, since the supply of suitable clay is apparently inexhaustible.

Franklin E. Losee, Newton, is developing a good business in building brick. His trade steadily increases, the bulk of his product going to local and nearby constructors. The town in which his yards are located has begun to grow recently, and during the summer is a lively place, with a good deal of structural work in progress, most of which requires considerable brick during the season. His works are operating to their capacity this year.

The Somers Brick Company, Atlantic City, is employing ninety men in its works at Northfield this season, turning out building brick, a considerable proportion of which are consumed in the home and nearby towns. The town is located next to the ocean and considerable summer business is done. This has required additions to the buildings recently, and the company has profited from this growth. Many of the recent dwellings erected there for summer purposes are of brick, wholly or partly.

The Atlantic Terra Cotta Company has fully 1,000 men employed at its plants in Perth Amboy, and they are crowded to their fullest capacity to keep up with their orders. The volume of business this season surpasses anything in their

particular line for a number of years, and seems to be increasing steadily. The capacity of the plants having been reached, increased business will force enlargement. The company operates with all the latest appliances for such work, and its output is considered as good as can be obtained. Perhaps the present is the most prosperous time terra cotta manufacturers ever knew. There has never been a time when terra cotta was so extensively used, and the information which comes to this company is to the effect that trade will be still better in the next few years.

The New Jersey Terra Cotta Company has 200 men employed in making terra cotta there, and the business is growing very rapidly. The situation is so much better than last year and demand increases so rapidly that larger facilities may be required to satisfy the requirements of the purchasers. The company contemplates such improvements and expansion as will be needed to maintain its business without resorting to pushing forward orders and asking buyers to wait.

The tile plant of the National Fireproofing Company, located at Port Murry, is crowded with orders, and finds it difficult to keep up with what comes in from day to day. The business has developed fast within the past year or two, but this year is the best the plant ever enjoyed. It is understood, or rather it is expected, about the plant that some enlargement will be worked out before the next season opens.

The Rockaway Brick Company, at Rockaway, is employing fifteen to twenty men this season, turning out building brick of a superior quality. The bulk of the product is used in town or near. The development of the summer business in the vicinity has created an increased demand for building brick, and the company is profiting accordingly.

The plant of the Atlantic Terra Cotta Company, at Rocky Hill, is working 300 men this season. The plant, like the others belonging to the company, is crowded to its full capacity, and orders are sufficient to keep it running full head until the close of the season. The product is used in all sorts of building operations, and is increasing in popularity for this purpose.

Sayre & Fisher, Sayreville, are operating their brick plant, employing 1,500 men, to its limit this season, and are sending out their product about as fast as they make it. Bricks from this section have sold fully as high as those from the Hudson river districts all the season so far, and demand has been more than sufficient to keep every man at work. One of the biggest brick firms in the State, this company has connections which enable it to place its product to good advantage and to develop its business wherever it may desire. The yards have a frontage along the Raritan river, which affords cheap and easy transportation, and there is opportunity for increase in business as demand for the product develops with the larger use of bricks and other clay products in the building and construction ends of the business.

A. L. B.

OHIO COMPANY SECURES BIG CONTRACT.

The Taplin-Rice-Clerkin Company, of Akron, Ohio, has been awarded the contract for installing all the sewer pipe, tile and other machinery for the Minnesota Farmers' Brick and Tile Company, of Austin, Minn. It is claimed this contract was awarded to the above company at prices in advance of those offered by other competing concerns, largely on account of the meritorious reputation of the goods and their well-known advantages.

Those interested in the Minnesota Farmers' Brick and Tile Company are from Mason City and Lehigh, Iowa, where the same kind of machinery has been in use for a number of years past with great success.

This makes two very large contracts received by the Taplin-Rice-Clerkin Company, of Akron, Ohio, within a few weeks, the first one being the Alberta Clay Products Company, at Medicine Hat, Alberta, which will amount to about \$15,000, while the contract from the Minnesota Farmers' Brick and Tile Company will approximate about \$10,000.

The company report their factory full of work to overflowing, and beginning September 1 will begin operating a night and day force.



Barrett's PAVING PITCH



Filling joints in brick pavement with Barrett's Paving Pitch at Downers Grove, Ill.

Paving Pitch at Downers Grove, Illinois

Barrett's Paving Pitch has been used on $7\frac{1}{2}$ miles of brick pavement at Downers Grove, Illinois.

These pavements are laid on gravel or macadam foundation, and are a complete success.

Mr. J. S. Lozier, the Municipal Engineer of the town, writes:

"The people are very well satisfied and much pleased with the neat, clean and sanitary condition of the pavement. The noise that so many were afraid of has failed to annoy, as predicted. I might add that at a meeting of the citizens recently one of the large property holders and owner of a fine home on the corner of one of our blocks

said: 'We have streets in Downers Grove that any city should be proud of, and that the City Council should be given a vote of thanks for the work that has been done.'"

Pitch Filler acts as a perfect water-proof seal and furnishes an element of elasticity, so that frost does no damage.

It allows each brick to rest on its own foundation.

There are no cracks or breaks in the whole $7\frac{1}{2}$ miles of pavement in Downers Grove, surely a good record for Barrett's Paving Pitch.

Illustrated Booklets about Paving Pitch free on request.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

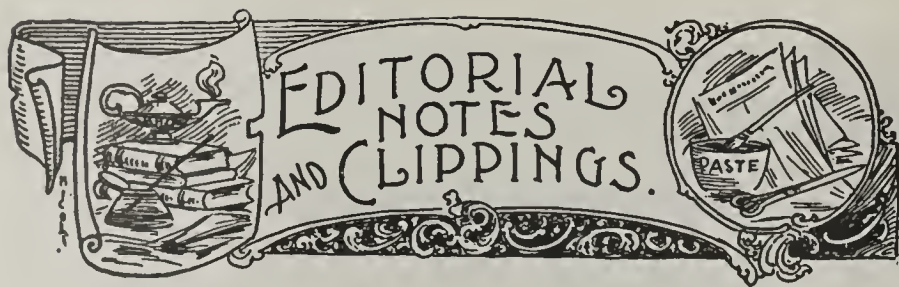
Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
London, England



The Penton Brick Company has been organized at Alloway, N. J., with \$25,000 capital stock.

W. H. Elton is at the head of a company that has been organized at Richlands, Iowa, to build a drain tile factory.

E. T. Harrison and John Rodgers, of Waverly, Ill., are interested in the construction of a brick and tile plant at Jacksonville, Ill.

The Willetts Company, of Pittsburg, Pa., will establish a plant for manufacturing glass pots and other clay products used in manufacturing glass at Fairmont, W. Va.

The incorporation is announced of the Steelton Brick and Tile Company, Limited, manufacturers of building brick and other building materials, at Sault Ste. Marie, Ont., Canada, with \$100,000 capital stock.

The large general store of the Alpha Brick Company, at Glasco, N. Y., was totally destroyed by fire early last month. The fire, which is supposed to have been of incendiary origin, caused a loss of over \$3,000.

Charles A. Painton, a prominent brick manufacturer of eastern New York, died at his home in Troy, N. Y., July 31, after a brief illness with heart disease. He is survived by his wife, four sons and five daughters.

Adam Fuetterer, an employe of the Bannon Brick Company, Louisville, Ky., in some way became entangled in the machinery and was badly injured before he could be rescued. While his condition was quite serious for a time, he will recover.

At a recent meeting of the stockholders of the Lexington Brick and Tile Company they voted to increase the capital stock from \$7,500 to \$25,000. This will enable them to build a railroad side track out to the plant, to put in drying sheds, kilns and additional machinery.

A company is being organized at Texarkana, Ark., to take over the plant of the Texarkana Clayworking Company. The officers of the company are: J. A. Pondrom, president; R. J. O'Dwyer, vice-president; John T. Owsley, secretary-treasurer. William Houck, of Springfield, Mo., will be manager.

The Polensje, Shellak & Co. brick plant, at Hastings, Neb., was almost totally destroyed by fire recently. The loss is about \$20,000 and the insurance less than \$7,000. The fire started from cinders which had been thrown against the door of the boiler house. About 500,000 green brick were lost. The plant will be rebuilt.

Chris Moder, foreman of the big Ada (Ohio) Tile Works, was perhaps fatally injured recently. While assisting in putting on a huge belt he slipped from a platform and fell inside the belt, and was carried around the big pulley between it and the belt. His lungs were crushed, collar bone and ribs broken, and several teeth knocked out.

An amendment of the articles of incorporation of the Busse Brick Company, Covington, Ky., has been filed. The amendment was to fix the highest amount of indebtedness to which the corporation may at any one time subject itself at \$30,000. The officers of the corporation are: Henry Busse, president; Henry Busse, B. H. Busse, Mary H. Heskamp, Louis Wieghaus and Anna B. Haar, directors.

For the purpose of taking over Joseph S. Houston's brick plant at Spokane, Wash., and doubling its capacity, the Spokane Brick and Tile Company has been incorporated, with Mr. Houston as president, Dana Child, of the National Bank of Commerce, vice-president, and Richard E. Strom, of the Strom Investment Company, secretary, treasurer and general manager. The concern has a paid up capitalization of \$100,000. Work will begin early next spring on doubling the capacity of the brick plant, which now has an output of about

35,000 bricks per day. The expenditure in this movement will be between \$30,000 and \$50,000.

Barkley Brothers are rebuilding their brick plant at Greenville, Ky., which was burned recently.

W. L. Magee has installed a new tile machine in his plant at Collins, Miss., and is now turning out tile 30 inches in diameter.

Melvin Hamblet, a pioneer brick manufacturer of that section, died at his home in Deering, Maine, July 12, from a stroke of paralysis. A wife and one son survive.

The Duffney Brick Company, at Mechanicsville, N. Y., has just completed the equipment of its new plant, which doubles its capacity. They are now turning out 80,000 building brick per day.

The Farmers' Co-operative Brick and Tile Company, of Mason City, Iowa, has just placed an order with the C. W. Raymond Company, of Dayton, Ohio, for \$40,000 worth of brick and tile machinery and appliances.

Fire which started in the machinery building, totally destroyed the plant of the Paola Brick and Tile Company, at Paola, Kan. The loss, which is estimated at \$20,000, was partly covered by insurance. The plant will be rebuilt at once.

Mr. W. S. Dickey, president of the Dickey Clay Manufacturing Company, Kansas City, Mo., entertained the entire office force of the company, numbering about fifty, by an excursion on his private boat, the Unique, one of the hot Saturday afternoons in July.

Harlingen, Texas, will soon have a pressed brick factory. The Harlingen Brick Works has just purchased press brick machinery and will add it to their equipment now in operation there. The plant as it stands has 30,000 per day capacity, common brick, and the addition of the new machinery will more than double the capacity.

The plant of the Poston Brick Company at Martinsville, Ind., is running to full capacity. They have just shipped two of the six carloads of their Oriental brick to be used in a business block at Denver, Colo. These Oriental brick are meeting with great favor for residence purposes. In addition to building brick, the company is furnishing paving brick for a number of Indiana towns.

A fire originating in the boiler room completely destroyed the Zanesville Art Pottery plant, at Zanesville, Ohio, early in the morning of July 30. The loss is estimated at \$125,000, and is only partially covered by insurance. About 200 persons are thrown out of employment. When the fire was first discovered it had gained great headway. Because of the low pressure of water little could be done toward checking the flames. The plant will be rebuilt.

Colonel W. F. Cody, better known as Buffalo Bill, one of the most interesting characters in the United States, has become interested and is one of the principal directors in the Cody (Wyo.) Clayworking Company. The company has placed a large order with the C. W. Raymond Company, of Dayton, Ohio, for a complete brickmaking outfit, which will be shipped in a short time. The equipment consists of a large brick machine, cutting table and complete apparatus for the manufacture of 50,000 brick a day, and will be one of the most complete and up-to-date plants in its line in the country.

A combination of five large brick yards, including plants at Wellsville, Ohio, Irondale, Ohio, Salisbury, Pa., and Merrill, Pa., with a capitalization of \$500,000, was effected recently. Headquarters of the new concern, capitalized under the laws of Delaware, will be located in the Fulton building, Pittsburg. The incorporators are H. E. McLain, H. W. Comer, J. H. Smith and D. C. Edmunds, all of Pittsburg. H. E. McLain is the owner and operator of the McLain Fire Brick Company, at Wellsville. The five plants are included in the new combination, which becomes effective immediately. These are the McLain Fire Brick Company, Wellsville; Irondale Brick Yards, Irondale; Salisbury Brick Plant, Salisbury; Merrill, Pa., plant, and one in the Pennsylvania mountain district.

(Continued on page 196.)



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents -Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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EDITORIAL NOTES AND CLIPPINGS—Continued.

The combination constitutes one of the strongest brick manufacturing concerns in the country.

Fire which started in the stock sheds of the Laclede-Christy brick plant at St. Louis, Mo., caused a damage of \$1,000, covered by insurance.

The Hoytville Tile Company has been incorporated to manufacture tile at Hoytville, Ohio. William Lewis and others are interested. They are capitalized at \$40,000.

Chris Slater, of Miles City, Mont., has started a small brick yard at Wibaux, that State, where he is turning out a fine grade of press brick, which sells for \$20 per thousand.

John J. Sinnot, of Tarrytown, N. Y., has been appointed receiver for the Peabody Clay Company, of that town, on application of A. N. Itterly, one of the stockholders of the concern.

The plant of the Black Hills Brick and Manufacturing Company, at Sturges, S. Dak., was completely destroyed by fire last month. The kilns are the only part of the plant not damaged. The company will probably rebuild.

The Burvo Brick Company is the name of a new company recently organized to establish a brickmaking plant at Eustace, Texas, where both face and common building brick will be turned out at the rate of 100,000 per day. The company is incorporated at \$150,000.

The Bradshaw Brick and Tile Company's plant at Fort Dodge, Iowa, was almost wholly destroyed by fire the afternoon of July 23. Twenty thousand feet of drain tile was destroyed. The fire started in the dryer. Although there was practically no insurance, the plant will be rebuilt at once.

The opening of the Tulsa Paving and Building Brick Company's plant, one of the largest in the middle West, occurred at Tulsa, Okla., July 15, and several hundred citizens, including the mayor and other city officials, were present at the "dedication" festivities. The plant has a capacity of 175,000 bricks per day.

The immense plant of the LaPrairie Brick Company, La Prairie, Ontario, Canada, has had a very busy season. Brick are being shipped to various parts of the province, thirty-five cars being shipped in one day recently. Difficulty in getting adequate coal supply regularly is the only worry the officers of the company have this season.

The immense plant of the Mt. Holly Brick and Clay Company, at Mt. Holly Springs, Pa., was dismantled and sold at auction not long since. The plant was started twelve years ago, and for some reason had never been a financial success, although a white brick of an excellent quality was produced. Williams & Freeman, of Harrisburg, Pa., purchased the machinery and equipment.

The Utah Silica Brick Company, of Salt Lake City, Utah, capitalized at \$500,000, in payment for the capital stock takes over an option executed by the Draper Silica Brick and Clay Products Company in favor of Samuel R. Neel, who holds 499,996 shares of stock in the new company. C. R. Neel is president; J. S. Sharpe, vice-president; C. E. Knapp, secretary; W. M. Odell, treasurer, and James Ingebretzen, director.

Judge Tompkins, in special term July 9, at Poughkeepsie, N. Y., signed an order dissolving the Hudson River Brick Manufacturers' Association. This society was formed in 1901 for mutual benefit. It appearing that those who attended meetings were the sole beneficiaries from learning what others were doing, the non-benefited ones made application to have the company dissolved and the few thousand dollars in the treasury divided.

Suit has been filed in the district court by the Lehigh Sewer Pipe and Tile Company, the Lehigh Clay Products Company and the Campbell Brick and Tile Company against the incorporated town of Lehigh, Ohio, the mayor and members of the board of trustees, asking that the election of July 16, to decide if the limits be extended, be set aside. In changing the limits of the incorporated town it was arranged to take in the manufacturing plants of the three companies, but they objected, saying they were in the farming section

and would not receive any benefit from the improvements that might be made.

The Northwestern Brick Company, of Wichita Falls, Texas, has been incorporated, with \$100,000 capital stock, by T. C. Thatcher, J. B. Paul and O. A. Kentner.

President William Schlake reports the Illinois Brick Company's plants in and near Chicago are running full capacity, and that the July output and deliveries exceeded any July in the history of the company.

The Logan Brick Company, of Logan, Ohio, has been incorporated, with \$100,000. The incorporators are H. W. Fraser, B. F. Longnecker, George C. Brice, G. M. Reswick and E. J. Marshall.

The Sullivan Fireproof Partition Tile Company has been incorporated in Tacoma, Wash., with a capital stock of \$50,000. The plans for the new factory are not yet completed. John D. Sullivan and Dan Swinehart are the incorporators.

A fire which caused \$1,500 damage was discovered at midnight of July 19 at the plant of the Old Bridge (N. J.) Company. The fire had gained considerable headway before it was discovered, and therefore did considerable damage to two of the important buildings.

Park Agnew, president of the Alexandria Brick Company, Alexandria, Va., died at his home recently of cirrhosis of the liver, after an illness of more than a year's duration. Mr. Agnew was one of the most popular citizens of Alexandria, and for many years a Republican leader of Virginia. A wife and four children survive.

Charles Hutchinson, Jr., who has been factory superintendent of the Hydraulic Press Brick Company's plant at Brazil, Ind., for a number of years, has resigned to take a similar position with Ayer & McCarel at the plant they recently purchased at Carbon, Ind. Mr. Hutchinson will enter on his new duties at once, and will have charge of the remodeling and enlarging of the Carbon plant for Ayer & McCarel.

Alleging mismanagement of the company's affairs, and that a manager and superintendent who was deposed not long ago was re-elected at a meeting of directors July 12, which was unfair, illegal and contrary to the by-laws, John N. Stewart has filed a bill in equity against the Allegheny Valley Brick Company, of Tarentum, Pa. He asks that a receiver be appointed, and that R. W. Hay, the newly elected manager, be restrained from interfering with the management and control.

The Harbison-Walker Refractories Company, Pittsburg, Pa., manufacturers of high-grade silica fire brick, are preparing to make a shipment of one thousand cases of sample brick to Upper Silica, Germany. The brick will be made at the Mt. Union plant, which is the largest of the thirty-seven plants owned by the company, and will be ready for shipment within the next two months. It was not known to what use the bricks will be put, but it is supposed that they will be used for experimenting purposes in manufacturing of illuminating gas.

D. Warren De Rosay, general manager of the Corry Brick and Tile Company, at Corry, Pa., in a recent letter writes: "Our product is entirely cleaned up, and I am compelled to enlarge our factory by the addition of two more of the large size Yates patent down-draft kilns, enlarging the dryer, and building a new office. When this is completed we will have an output of 50,000 brick per day. Expect to have everything completed and the kilns and dryer in full operation by September 1. Business in this section of the country is good, but help is scarce."

The Utah Fire Clay Company, of Salt Lake City, Utah, has acquired a two-thirds interest in the Murray, Utah, plant of the Western Fire Clay Company, and in the near future the two companies will be operated most likely under one management. The Murray plant of the new concern, which was started by the Western Fire Clay Company, will cost, when completed, about \$150,000. It will be thoroughly modern in every particular, and the latest and most approved machinery for the making of clay products will be installed. The principal product will be fire brick, though considerable attention will be paid to the manufacture of sewer pipes and fire clay

EDITORIAL NOTES AND CLIPPINGS—Continued.

insulators for high tension wires. The manufacture of the latter product is a new undertaking in the West.

George Southwell, of Auburn, Pa., and W. H. Gardner, of Philadelphia, have purchased the sand-lime brick plant at Sanfords, N. Y., and will put same in operation.

D. D. and Morgan Jones have opened up a small brick yard at Mina, S. Dak. The Messrs. Jones formerly operated a brick plant in Iowa, and so have the benefit of experience in the new venture.

The plant of the Bibb Brick Company, Macon, Ga., is being equipped with electric power, which will replace the old steam plant. This is also true of the Cherokee Brick Company. Both plants, which are running to full capacity, will be furnished with power from a central station.

N. J. Littlejohn, J. E. Lane and G. J. Weidman, of Lewistown, Mont., are interested in a movement to establish a brick manufacturing plant at that place. A twenty-three-acre tract of ground, containing an excellent quality of shale, has been purchased, and plans are under way for a plant of 50,000 daily capacity.

The brick yard at Sangerfield, N. Y., under the management of Rev. Sherman W. Haven and Harry Livermore, is doing a thriving business, and it has been necessary to increase the force of men employed. The company has disposed of nearly all the tile it has been able to make, and has several large brick contracts on hand.

The National Fireproofing Company, of Pittsburg, has closed a deal for the purchase of 350 acres of fire clay land at Elkton, Md., on which the company will erect a plant for the manufacture of terra cotta hollow tile. The purchase is the result of a twenty years' effort to secure clay deposits near to the cities of Washington, Baltimore and Philadelphia. The

company spent over \$10,000 in making drilling in its search for good clay.

The Resiser Press Brick Company has been incorporated at Laredo, Texas, with \$25,000 capital stock. S. N. Johnson, E. A. Atlee and L. A. Resier are interested.

R. P. Stewart, manager of the Lehigh (Iowa) Clay Products Company, was married recently to Miss Eva Flynn, of Portland, Ind. They will make their home in Lehigh.

The Beaver (Pa.) Clay Manufacturing Company recently purchased the plant of the Beaver Valley Roofing Tile and Terra Cotta Company at McKinley's Run, and will put same in operation at once. The plant has a capacity of 20,000 fire brick per day.

Plant No. 2 of the Barr Clay Company, at Streator, Ill., has been in operation about a month now, and in addition to the old or No. 1 plant gives the company an output of 200,000 brick a day, for which there is a steady demand. In fact, before this second plant was started the company could not begin to keep up with its orders.

William Sorensen, foreman of the North Iowa Brick and Tile Company's plant at Mason City, Iowa, fell head first down a twelve-foot elevator shaft while repairing some machinery at the plant, and suffered injuries from which he died a few hours later. He was thirty-five years old, and leaves a wife, but no children.

The sanitary potters of Trenton have served notice on manufacturers that unless their demand for \$1 a day increase is granted they will go out in a body. They now receive \$3 per day. The demand came as an entire surprise, since the potters are working under a wage scale adopted by the Brotherhood, and it doesn't expire until November 1. What will be done about it cannot be told now. The sudden and altogether unexpected request has created little short of consternation in Trenton, where the sanitary pottery business is among the principal industries, and a strike would mean serious hardship for the city.

FOR SALE, WANTED, ETC.

FOR SALE.

A four mold new Ross-Keller Triple Pressure Brick Machine, will make a second-hand price on it.

EXCELSIOR TOOL & MACHINE CO.,
7 3 d East St. Louis, Ill.

WANTED—Yard foreman upon paving brick plant. One capable of superintending sorting and shipping. Address with references and wages expected,
BROOKS,
7 2 d Care Clay-Worker.

TO LEASE.

Brick plant which will make anything made from clay, coke oven tile, shingles and all kinds of fancy brick. Situated on the C. & O. railroad one mile above Charleston, W. Va. Address
BOX 7, W. VA.,
7 3 cm Care Clay-Worker.

WANTED.

In the rapidly growing city of Mena, Ark., a brick manufacturing plant. Good clay abundant and fuel cheap and convenient. Address for further information,
G. B. WOOD,
General Agent, K. C. S. Ry.,
6 6 dm Mena, Ark.

WANTED—Position as manager; 20 years' successful experience. Paving brick expert. Address
BOX 8, Profits,
8 1 c Care Clay-Worker.

FOR SALE.

One Eagle repress, double die. -Good condition and numerous dies. One Dayton Perfection press, smaller size.
LEHIGH FIRE BRICK WORKS,
7 2 c Catasauqua, Pa.

FOR SALE CHEAP.

Fate cutting table, in good condition, 40 to 60 M capacity. Also brand new shale pit car.
MIDLAND BRICK CO.,
8 1 cm Peru, Kans.

WANTED—Position as burner in a brick yard which runs the year round. Am a German brickmaker, with lifetime experience. Can give reference and willing to take small share. Address
BOX 8, P. P.,
8 1 c Care Clay-Worker.

WANTED—An experienced brickmaker to superintend new plant. Product, fire brick and face brick. References required.
OLIVER SPRINGS COAL AND CLAY CO.,
8 1 d Oliver Springs, Tenn.

FOR SALE—Latest improved Madden & Co. tile machine, used less than three months. Disintegrator. Dies from 4 in. to 24 in. Very cheap for immediate sale. Address
C. H. CRONINGER,
7 1 c Hartford City, Ind.

FOR SALE.

Soft mud brick plant in town of 18,000. Also 39 acres excellent clay. Transportation facilities consist of three railroads and Ohio River.
H. C. MASON,
7 1 lp Henderson, Ky.

FOR SALE—CHEAP.

Ten track Barron steam tunnel dryer, style "B" Martin machine, with automatic striker-off, Potts sander, and 14,000 white pine pallets.
SMITH BROS. BRICK CO.,
7 1 d Park Bldg., Pittsburg, Pa.

FOR SALE.

We offer our entire brick and tile plant at a bargain. This is one of the best paying and best equipped factories in eastern Iowa, and is running full time all this season. Other business demands our time and we must sell. Address
M. and Y.,
8 3 d Care Clay-Worker

(Continued on next page.)

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE.

Three first-class Richardson represses.
WESTERN BRICK CO.,
8 1 d Danville, Ill.

WANTED.

One eight-foot wet pan, second hand. Must be in good order.
OCONEE BRICK AND TILE CO.,
8 1 d Milledgeville, Ga.

FOR SALE—Well equipped gray face brick plant, capacity 30,000 daily. Located on Penn. R. R. in Pa. For full particulars apply to
BOX 8, Gray Brick,
8 1 cm Care Clay-Worker.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address
BOX 8, R. B. C.,
8 1 d Care Clay-Worker.

FOR SALE.

No. 1 Giant Auger Brick Machine.
Three Standard nine-foot Dry Pans.
Both American Clay Machinery Co.'s manufacture.
One Freese Cutting Table, 16 brick capacity.
READING SHALE BRICK CO.,
6 3 c Reading, Pa.

WANTED—Position as superintendent of a brick and tile plant. Can work help to a good advantage. Have had experience in high-grade face brick and all kinds of hollow ware. Can furnish best references. Have position at present, but reasons for changing. Address
BOX 8, A. F. S.,
Care Clay-Worker.

FOR SALE.

A BRICK AND TILE PLANT.
A new brick and tile plant, located in the western Colorado, with the purest and best shale bank in the West and sufficient to operate the plant for twenty years, which is making a high class of brick and tile. This is located on a running stream and good railway facilities with a good market at hand. This is an elegant opportunity for the right party with capital, one of the best opportunities in the West for working up a large, profitable business.

For information address
BOX 8, John A.,
8 2 cm Care Clay-Worker.

WANTED—A man familiar with continuous tunnel kiln to superintend the burning of a sixteen-chamber kiln.

CHEYENNE BRICK CO.,
8 1 d P. O. Box 18, Cheyenne, Wyo.

FOR SALE.

Brick plant in central Florida. Unlimited supply of clay. Will sell all or half interest to right party. A good opportunity. Address
BOX 8, A. B.,
8 3 cm Care Clay-Worker.

WANTED—Position as superintendent of front or paving brick plant. Up-to-date in installing and running machinery, handling men and burning. Best of references. Address
BOX 8, M.,
8 2 cm Care Clay-Worker.

BRICK PLANT FOR SALE—Complete with new machinery and dryers; now making brick for government work; 400 acres of the finest clay land. Bank close to kiln, located near Newport News, Va.
G. H. BROWN,
8 1 cm 295 Duke St., Norfolk, Va.

FOR SALE—One second-hand 9 ft. dry pan, 2 second-hand 8 ft. wet pans. Two American Clay Machinery compounding crushers. All of the above in good working order, with some repair parts for same.

GREAT EASTERN CLAY CO.,
39 Cortlandt street,
6 3 cm New York City.

UNUSUAL INDUCEMENTS TO BRICK MANUFACTURERS.

Mahaffey, Pa., with two competing railroad trunk lines, the best of clay for builders and pavers and high-grade bituminous coal for fuel, wishes to secure the location of a brick plant. Works can be located adjacent to clay and fuel, so that they can be dumped from the mine to the plant. Address

BUSINESS MEN'S ASSOCIATION,
8 1 d Mahaffey, Pa.

FOR SALE.

The entire property of the Sheridan Brick Works, consisting of 25 acres in Clay county, Indiana (½ mile north of Brazil), 5 boilers, 4 engines, steam shovel, Freese "J" combination brick machine and No. 24 Automatic cutter, 24 track Standard Dryer, kiln, capacity 75,000 brick per day.

This plant has been manufacturing high grade medium price face brick which has been well introduced throughout the middle West. Plant is ready to operate, manufacturing either common or face brick. At very little expense could be converted into a modern drain tile plant.

For full particulars and price write
THE MARION TRUST COMPANY,
7 2 d Receivers, Indianapolis, Ind.

A PRACTICAL, experienced man in every detail of the manufacture of face or paving brick, from the kiln to the office, is open for a position. Will give the best of references. Address
BOX 8, Panama,
8 tf d Care Clay-Worker.

WANTED, A PARTNER.

I am seeking a partner to invest \$10,000 as working capital in a most modern common brick plant in the vicinity of Baltimore and Washington on terms and conditions which will be inviting. This proposition is in every particular exceptional, and only those having the necessary cash and experience in the brick business need apply. Address
BOX 7, TOWERS,
7 2 d Care Clay-Worker.

WANTED.

A red silica rock sand that will not flux under twenty-five (25) hundred degrees of heat. Also want a fine loam sand for sanding building brick that will burn cherry red or salmon color at twenty-three (23) hundred degrees of heat.

Any person knowing of such sand or having same for sale will kindly communicate with the

C. P. MAYER BRICK COMPANY,
7 tf d 906 Park Bldg., Pittsburg, Pa.

REBUILT ENGINES AND BOILERS.**ENGINES—CORLISS.**

20x48 Wheelock, 18x36 Ohio Heavy Duty, 14x42 Hamilton, 14x36 Vilter, 12x36 Allis, etc.

ENGINES—AUTOMATIC.

15x14 Erie, 14¼x16 Buckeye, 11x16x12 Buffalo Compound, 13½x15 Taylor, 13x16 Erie, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 10¼x14 Buckeye, 10x14 Noyes, 9x12 Russell, 7x10 Atlas, etc.

ENGINES—THROTTLING.

16x22 H. S. & G., 14x18 Sinkers-Davis, 14x14 Lewis Vertical, 12x16 Reed, 12x14 Gibbs, 12x12 Wells, 10x16 Bass, 10x12 Oil Well, 9x12 Ball, 9x10 Reed, 8¼x12 Leffel, 7x10 O. & S., 6x8 Industrial, etc.

BOILERS—STATIONARY.

72x18 high pressure, 72x18 standard, 72x16, 66x16, 60x16, 60x14, 54x16, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, 36x12, etc.

BOILERS—FIRE BOX.

100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10, and 8 H. P., etc.

BOILERS—VERTICAL.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 H. P., etc.

HEATERS.

All sizes, open and closed.

PUMPS.

All sizes, Single and Duplex.

MISCELLANEOUS.

Saw Mills, Lath Mills, Edgers, Cut-off Saws, Re-Saws, Blowers, Exhaust Fans, Tanks, etc. Write for list.

Also full assortment of new machinery. Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers St., Cincinnati, Ohio.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LIV.

INDIANAPOLIS, IND., SEPTEMBER, 1910.

No. 3.

Written for THE CLAY-WORKER.

BRICK AND TILE USED TO BRIGHTEN UGLY CEMENT SURFACES.

CLAY PRODUCTS ESSENTIAL TO ATTRACTIVE ARCHITECTURE—TILE ROOFING THE CROWNING GLORY.

THEY HAVE HAD to come to it. The concrete enthusiasts have been experimenting with every conceivable type of ornamentation from stucco to highly colored cement mixtures, but in practically every case these experiments have failed to come up to expectations. The stucco has crumbled off, the plain white cement finish has cracked and grown dirty, while the colored surfaces have faded and changed color like a chameleon, and in several known instances the owners have ordered the work done over. So they must, after all, even though reluctantly, come to the clayworker for decorative and surfacing material with which to protect and ornament concrete structures.

So, we repeat, the concrete advocates have had to turn to terra cotta, tile and brick as a finishing material, as is strikingly illustrated in the accompanying cut, which shows a lavish and really artistic treatment of brick and faience tile for decorating the exterior of a concrete building. The structure in question is the California State Normal School at San Jose, which has just been completed. It was designed by Engineer Nat Ellery, who has made an exhaustive study of the concrete problem from the standpoint of architectural

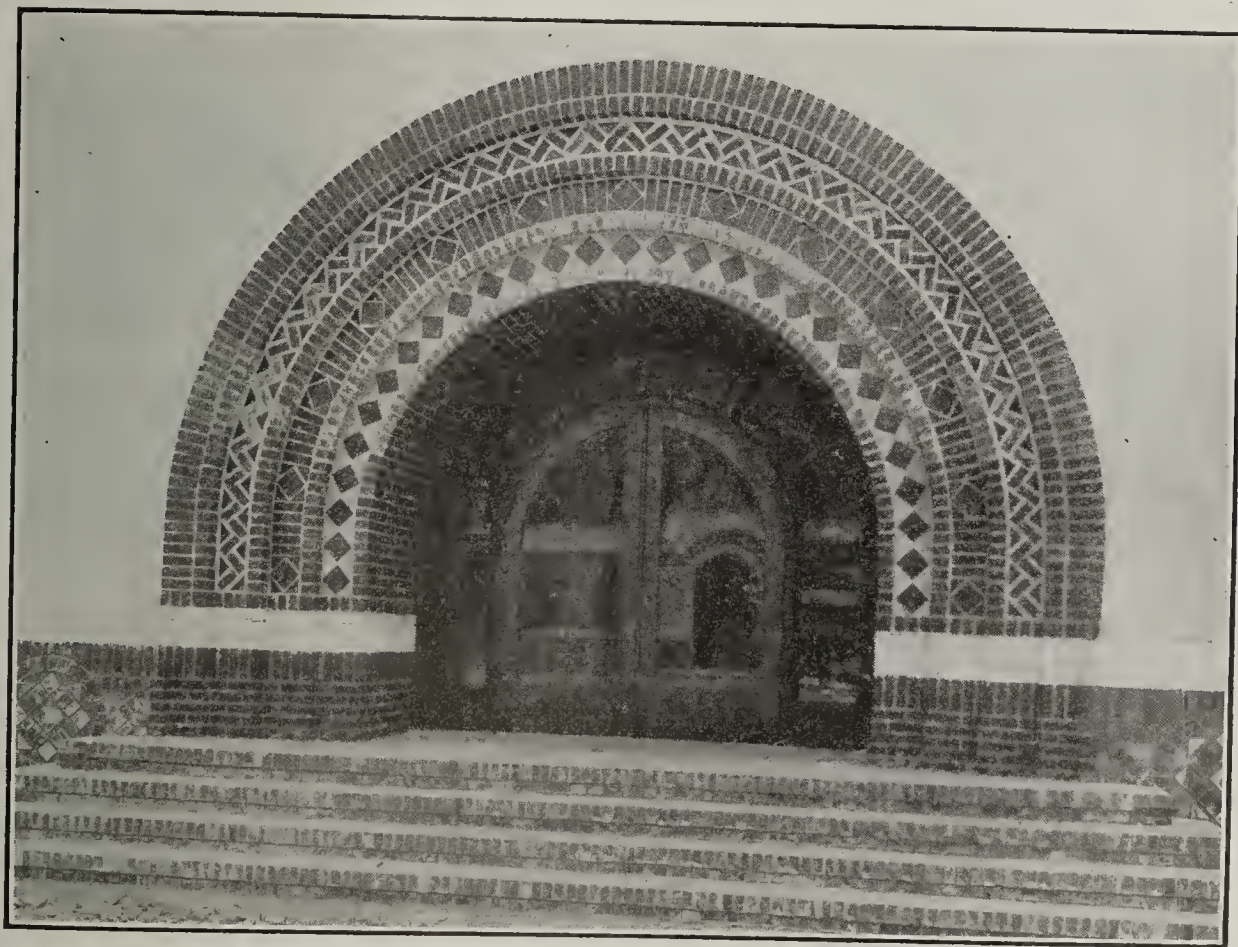
beauty and is convinced that clay products are absolutely essential if anything approaching attractiveness is to be obtained.

Mr. Ellery has tried plain plaster and ornamental plaster, and it has not worked out satisfactorily. On the other hand, his experiments with tile, red pressed brick and terra cotta have demonstrated that clay products are indispensable if there is to be any beauty at all in the exterior appearance of the building.

The school building is built in the shape of a rectangle, broken up slightly with pavilions and buttresses. The ex-

terior color scheme is gray, red and green, red clay tile of a uniform size and color being used for the roof, which harmonizes nicely with the red brick and faience tile inlays. The inlaid work is used largely to decorate the entrances and towers. There are 20,076 square feet of this inlay tile.

In the center of the building is a large quadrangle, which will be laid out into concrete walks and grass plots. Extending entirely around the quadrangle, on both



Entrance to California State Normal School, San Jose, Ornamented With Brick and Faience Tile Inlays.

floors, are open arcades, affording comfortable passage from one class room to the other. The main vestibule floor is laid with Welch quarry tile, while the corridor floors are of colored cement. There are one hundred and fifty-five rooms all told, including all enclosures requiring both door and window. There are thirty-eight large class rooms, the average size of which is 24x32 feet. The library is the largest room in the building, and is a gem in itself, being two stories high and devoid of columns to occupy valuable space and obstruct light.

The ceiling is done in ornamental plaster, with panels and Corinthian pilasters in staff and stucco. There are accommodations for 40,000 volumes, the equipment for same including forty-four reading tables and twenty-two double racks of steel, each one fourteen feet long.

The faience tile and red brick used as inlay make a pretty contrast to the dull gray cement finish, and add 100 per cent. to the attractiveness of an otherwise uninteresting mass of dirty walls. The roof, being composed entirely of terra cotta tile, gives the Spanish mission effect, and at the same time adds further color to the designer's conception.

The fact that the Normal School is only one instance in a great many where brick and tile have been used to decorate concrete buildings would seem to refute the claims of the concrete people, who would have the public believe that cement can be utilized to good advantage for exterior finish.

BUILDING PROSPERITY.

A fair share of the prosperity that we have right at the present time is directly traceable to building operations. In-

general people, the great mass, have come out of hiding with their finances, and instead of banking them are putting them into homes, and the result is there is a great lot of home building nearly everywhere.

Now and then we hear complaint that many people are buying automobiles who might otherwise spend the money building new homes. However, notwithstanding this, and the fact that it may have a deterrent effect on a certain percentage of people, the fact remains that there is more home building going on now in certain sections of the country than has been known for some time. It is the lumber people who make this claim that automobiles interfere with the more extensive sales of lumber, but really it is not lack of building operations so much as it is lack of consumption among the railroads, car builders and other big manufacturing users of lumber that makes conditions rather slow.

In the brick business conditions would be slow, too, if it had to depend entirely on building operations—that is, the building of homes. It is when larger undertakings—apartment houses, office structures and public buildings—are going forward that there is a heavy volume of building brick moving,



Tower and Main Building, State Normal School, San Jose, Cal.

deed, take out two factors, that of building and that of agriculture, and the business of the country to-day would be in rather poor shape. Among many of the industries times are decidedly slow, and the financial world has been a little weak kneed, especially in the East. Meantime, however, excellent crops have been growing, and building operations have been progressing wonderfully.

In speaking of building, the term is used in a broad sense, to include not only the building of residences and the more pretentious building structures, but also the building of new streets and sidewalks. In many of the cities there is a wonderful lot of street paving being done this year, and in general building operations, while some parts of the country may report trade a little bit slow, in the majority of cases the builders are the busiest men going. In some cities it is difficult to get help enough to get the work done promptly, so great is the demand on the building trade. Others are not so strenuous, but home building especially is at high tide right now. It looks like the high tide following the panic, and that the

and it takes an enthusiastic round of street paving to make things boom in the paving brick business. We are having it now, too, a fair amount of prosperity both in home building and in street paving. The comparatively low price of lumber makes it a little more difficult to push brick in competition with lumber for modest homes in the matter of first cost right now than it was during the high tide in lumber preceding the panic. There is sometimes room enough to get in competition on the cost basis. The place for the brick and clay products people to do their heavy work, though, is on the point of encouraging people to build better and more permanent homes, and add fireproofing qualities—safe and sane building, as it were.

It would help some, too, to give more attention to the matter of the exact relative cost of buildings constructed with lumber and brick. The general public is in ignorance on these matters, and usually assumes that it takes a fortune to build a brick house, and many a man might be induced to spend a little more and build better if they were made to

realize that the margin of difference between brick and lumber was smaller than they had calculated on. Anyway, it is a good time to look well after trade in the home building line, because there is lots of home building going on.

THE BEAUTY OF THE BRICK HOUSE.

BRICK is the aristocrat of building materials. It has a known pedigree which goes back to the day, more than three thousand years before Christ, when the Assyrians reared their terraced temples and palaces in Western Asia. In Ur of the Chaldees, whence Abraham went into the Land of Canaan, in Nineveh, in Babylon, the important buildings were made of brick.

Great masters of architecture had established ideals of beauty in brick centuries before the Greeks perfected the structure of marble and stone. And the simple block of burned clay has held its place through the ages, ever appearing in the centers where the art and taste of the world have taken up their headquarters. We are told by historians that, after Rome yielded its supremacy to Byzantium, brick came to the front, after a period of partial eclipse, and assumed the importance which it has been able to claim ever since.

It is natural that the Old World should know more about brick, appreciate more clearly its infinite possibilities, than does America. Europe has been a land of brick houses for hundreds of years; America is only just beginning to emerge from the "wooden age." Many a traveler has returned from abroad with tales of the picturesque homes of England, quite unaware that the underlying cause of their charm lies in the material—solid, dignified brick, the appeal of which has only been enhanced by years of sunshine and storm.

Charles Thomson Mathews, author of *The Story of Architecture*, says that, "roughly defined, architecture is the art of ornamental construction; not ornamental in the sense of decorated, but in the harmonious distribution of mass, in the convincing beauty of proportion." The same standard applies to the modest home as to the vast public library or court house. "Convincing beauty" is not a matter of money. Perfect taste and the perfect material can be put into a \$4,000 or \$5,000 home as well as into the millionaire's palace. Is there any one who has not been fortunate enough to see, at some time in his life, a little brick house that appealed to him as being all that it should be, an ideal companion for the trees and the grass and the hills around—a little house that cost no more than the gate lodge of some expensive and glaring "villa"?

Brick is the material that succeeds, as none other can, in adapting itself to the wants of the man with good taste and a moderate income. In the house built on a proper plan, it suggests all the qualities that should be associated with the word home—permanency, hospitality, warmth, comfort, beauty. And brick has that rare and wonderful characteristic which is said to distinguish the elect among womankind—it grows old beautifully.

In a building it is not possible to have real beauty without strength. The eye cannot be thoroughly satisfied, if in the mind lurks the consciousness that the architect's creation is to be vanquished in the battle with Time. Time is powerless to mar the beauty or to sap the strength of brick. Generations may come and go, but the sturdy brick walls of the homestead stay on. Brick may reach a venerable old age—it never reaches the state of decrepitude. Brick comes from the bosom of Mother Earth, in the form of plastic clay; it is hardened by the most powerful agency known in the world—fire, and is proof against the further attacks of fire; it defies wind and rain—it is as enduring as earth itself.

To be a success any work of art must have individuality, character. The painter produces his effects by combining colors. Each primary color is a unit, and the mixture and application of these colors make possible a limitless number of combinations. So it is with brick. The number and the variety of units give full play to the talents of the architect.

He uses them as an artist uses his paints. He can produce a house with character.

Since the day when the Assyrians were in their glory the inventive genius of man has wrought great improvements in brick. Nowadays it is turned out of the kiln in nearly every color and shade, in every degree of coarseness and fineness. It dams a river, it paves a street, it forms the wall of a factory, it adorns the inside as well as the outside of a home.

There was once a time when the mortar joint was regarded as an unwelcome necessity, but that time is past. Modern art has shown that mortar can be made a valuable ally in attaining the ultimate object, beauty. With their units of many colors, the architect and the clever brick-worker create a surface which has the look of a skillfully woven fabric. Thus the bonding together of brick permits of varied effects in what the architects call "texture."

Brick has such a quality of humanity as clings to no other substance that goes into the making of a house. There is always the knowledge that here is the work of human hands—that every piece was made by man and put into place by man. The effect, produced by man's harmonious arrangement of his many units, is one of lasting vitality.

It may be taken for granted that many a home builder has passed brick by because of mistaken ideas about its cost. In these days there is no reason for any man, who is planning to build, to yearn in vain for a home of brick; he may have it if he wants it. And he will want nothing else if he studies the course of present-day thought in architecture—if he learns what the leading architects and builders of the world consider the most beautiful, the most permanent, the most economical of all materials.

(Copyrighted, 1910, by The Building Brick Association.)

CAUGHT NAPPING.

They were taking a look through a new house the builder was just finishing up, and after looking through the basement and the ground floor, wandered on to the upper floor and into the bathroom.

"Here," the builder said, "you will find me using something new. It is a new hobby of mine. You will notice this bathroom seems to be wainscotted with tiling. It is not, though. It is plastered with a special cement, and after being smoothed off is score marked with a tool so as to resemble tile, and it takes very well with the people, because it is a new thing."

"Gee!" exclaimed the brick and tile man. "Why didn't you tell me about this sooner? This thing you have here is seemingly near tile, but it is really nowhere near glazed tile. It will absorb moisture and is unsanitary. For just a little more I could have given you an elegant glazed tile, either in white or in any color tone you might have desired. Then you could have had a bathroom that you might have been proud of. My! I am surprised to see you doing this. How did it happen, anyway?"

The builder stopped and looked thoughtful for a minute. Then he turned to the brick and tile man with a grin and said: "It looks like it happened because you were caught napping. When I take out a building permit I hear from all sorts of people, especially people that are enterprising, and this fellow not only sent me circulars and advertising matter, but called me up over the 'phone and then came to see me in person, and urged and talked to me about this offering until I agreed to try it. Now that I have given it thought, I don't believe that I even heard from you in any manner, and I will take as a bet that you don't even read the record of building permits that is published regularly in one of our local papers."

"No," the brick and tile man admitted, "I have been too busy and don't keep up with those things, and I consider so much of circular matter as being wasted that I have about cut that out too, and go on the theory that our institution and our products are well enough known to not call for things of this kind."

"That's where you lose," the builder replied. "You have simply stopped and gone to sleep on the job, while these other fellows have kept alive and wide awake with these substitute offerings."

Then there was a whole lot of other talk followed, in which

the brick man and the builder argued about the relative merits of different things, and the first subject was passed by and forgotten, but it leaves behind it, as a reminder, this question that many a brick and tile man might ask himself: Are you being left behind by other substitutes because you are not industriously pushing your products at every opportunity?

A MAMMOTH OFFICE BUILDING DISSECTED.



WE ARE MUCH more apt to be impressed by a building that exceeds all others in point of height rather than bulk, mainly because our eyes are constructed to take in only the superficies of an object, and hence give us but an inadequate conception of its cubical content. For instance, it is not half so sensational to state that the coal consumed by a transatlantic liner in a single trip would occupy a bin 60 feet square and 50 feet deep as to state that a train over a mile long would be required to cart this amount of coal from the mines to the vessel. Again, the great pyramid of Cheops, which is the bulkiest monument built by man, is frequently used as a unit by which to show the enormity of our annual crops, our output of coal, the production of iron, and the like, but frequently this results in filling the reader with astonishment at the hugeness of the pyramid itself rather than impressing him with the enormous bulk of the product compared therewith.

Public interest in large buildings has been so occupied with the loftiness of the Metropolitan and Singer towers in recent years that other buildings, much larger, when their three dimensions are considered, have received practically no attention. For example, the City Investing Company's building, though many times bulkier than the towers just referred to, has been almost completely overshadowed by the neighboring Singer tower because the latter reaches up a hundred odd feet higher.

However, the tower type of building has about reached its limit of height, not on account of any structural difficulties, but because the revenue from offices hardly provides sufficient return on the original investment. For this reason the skyscrapers of the future will have to be wide and deep as well as tall. Our sky-piercing towers have established the records, but the real work of raising the sky line of New York will be done by the large buildings that are growing up to these record heights. It is only fair that these huge though not so tall buildings should receive recognition.

The largest office building now in course of construction is an annex to the Whitehall Building on Battery Place. The original structure is only twenty stories high, but the Annex is to consist of thirty-one stories, and will rise to a height of 415 feet from the curb. While this is about 75 feet less than the extreme height of the City Investing Building, it represents a larger rental capacity when combined with the old building, the office space in the two being 550,000 square feet, or more than in any other building in the world. The Annex is built on a plot of 51,515 square feet, and the total cubical capacity of the building, exclusive of the foundations, will be 11,000,000 cubic feet.

Before commencing the actual construction of the building, it was necessary to excavate 17,000 cubic yards of earth. This is equivalent to digging a narrow trench 18 feet wide and 6 feet deep all the way from the Battery to Madison Square.

In order to convey an adequate idea of the tremendous proportions of this building, our artist has dissected the structure and assembled the principal materials about the Madison Square Garden and Tower, as shown in the accompanying illustration. The structural steel work, representing 14,000 tons, has been built up into a single girder of standard proportions 19 feet square, the metal being correspondingly heavy, and this extends to a height of 308 feet. The girder compares favorably with the Madison Square Tower. In constructing the

walls of the building seven and a half million common brick will be used, and these, if built up into the form of a brick of standard proportions would completely overshadow Madison Square Garden. In addition to the common brick 900,000 face brick will be required in the building, as well as 3,000 tons of ornamental terra cotta, and the latter molded into a single capital would occupy the dimensions given in the illustration. Within the building there will be 450,000 square feet of partition tile and 120,000 square feet of column covering; 45,000 barrels of Portland cement will be used. The cinder fill for the floors will be about half a million cubic feet, which, if put into a rural sidewalk of standard dimensions, would reach nearly all the way from New York to Philadelphia. It is astonishing how much glass is required in the building. If made into a single sheet it would cover 60,000 square feet, or more than an acre and a half. Even such a thing as the window weights is an enormous item, as will be evidenced by comparing the huge window weight in the illustration with the man shown at the right hand side. While modern office buildings are constructed of fireproof materials, a certain amount of wood is absolutely necessary. For the floors alone of the Whitehall Annex 800,000 board feet of yellow pine will be required, while for the base molding 80,000 feet will be used.

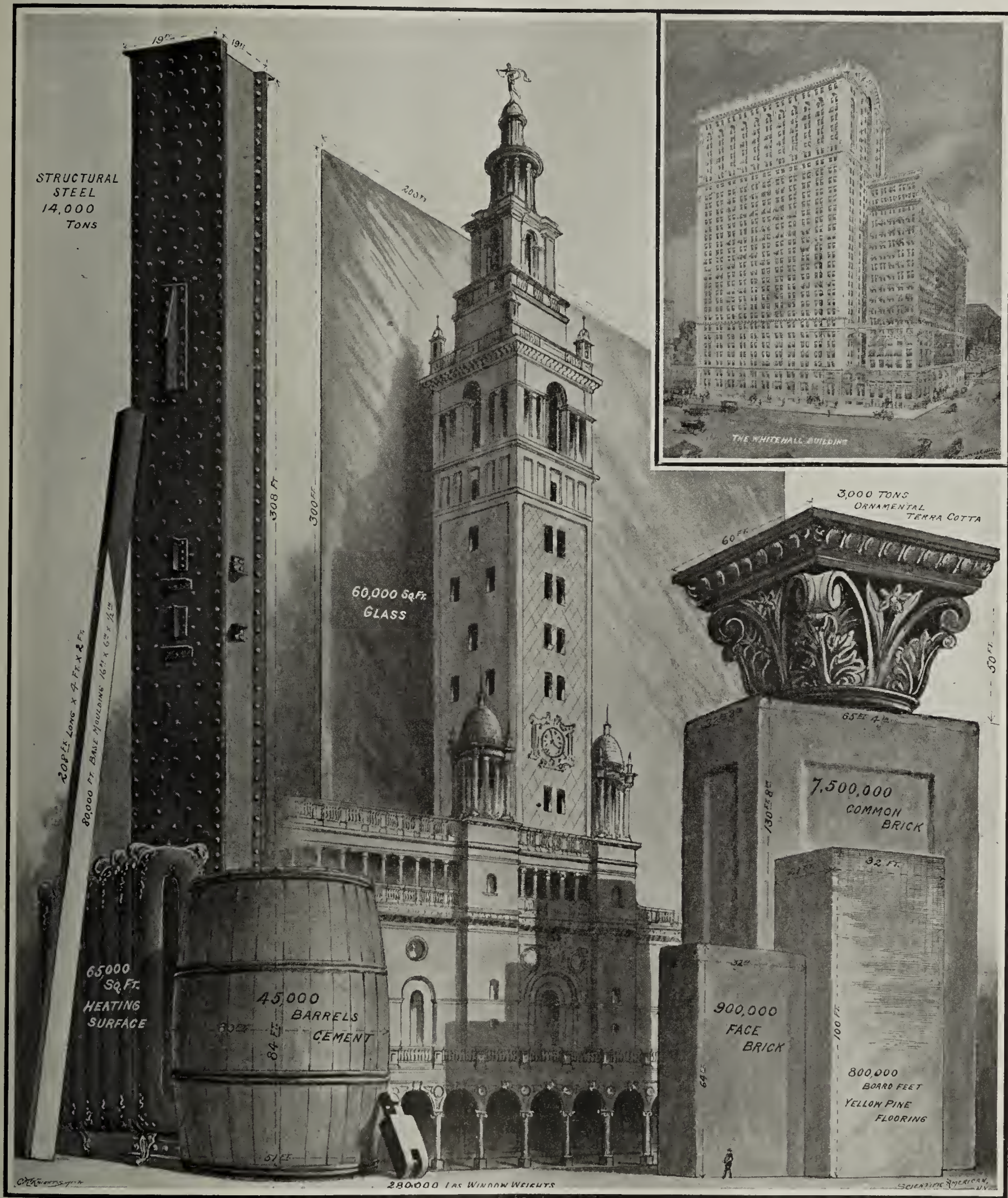
To heat the building 65,000 square feet of radiator surface will be furnished, and if a single radiator were made to provide this amount of radiating surface it would rise almost to a level with the roof of the Madison Square Garden. The boiler equipment of the building will consist of 21,000 horse power, and the engines of 2,000 horse power. The combined candle power of the electric lamps will be 190,000, and there will be over 3,000 electric fixtures, with 65 miles of conduits and wiring. Ten miles of plumbing will be necessary and 20 miles of steam pipes. While these are only a few of the items required in the construction and equipment of the building, they suffice to show that a large structure may possess a great deal of interest quite apart from its height.—Scientific American.

ANNUAL CONVENTION ASSOCIATION OF CERAMIC INDUSTRY.

The thirty-third convention of the Association of Ceramic Industry took place in Berlin on June 9 last. The annual report showed that the commercial situation was not better this year than the year before, and in fact that the last half year was worse than the previous half year. In regard to the commercial trade with the United States, the report states that the association had made very strong protest against the false reports which were circulated by the American potteries, and that as a result the new tariff of the United States did not increase the duty on pottery. The lead question committee reported that it had held several meetings, and 600 marks for expense were voted by the association. The total potteries of the German Empire are divided as follows: 59.9 per cent. consist of small factories which employ less than ten men; 15.4 per cent. are factories of medium size employing between ten and twenty men, while only 24.7 per cent. are big factories employing more than twenty men. As potteries employing less than twenty men should not be counted in the lead question laws, only one-fourth of all the factories will be included regarding the provisions of the lead laws. Among the many technical papers read was one by Dr. Heinecke describing a new kiln, in which he supplies the air necessary for burning under pressure. Dr. Berdel read a paper regarding the modern whiteware glaze technology. He divides the glazes into four parts—flowing glazes, matt glazes, china glazes, luster glazes and crystal glazes. In all glazes he endeavored to bring about the elimination of frits. The experiments were conducted at a heat of Seger cones 2-4 and 8-9. Mr. C. Tostman read a paper on "The Importance of the Coefficient of Expansion in the Ceramic Technology." The paper describes the different experiments made regarding the several materials in glaze work.—Keramische Rundschau Nos. 25-26, 1910.

(Note.—This paper should be of great interest to the members of the American Ceramic Society, as it severely attacks some of their published papers, especially the paper by S. G. Burt on "Coefficient Equivalents" and the papers by Purdy on fritted glazes which appear in their transactions.—Editor Foreign Scrapings.)

A MAMMOTH OFFICE BUILDING DISSECTED.



[Courtesy Scientific American.]

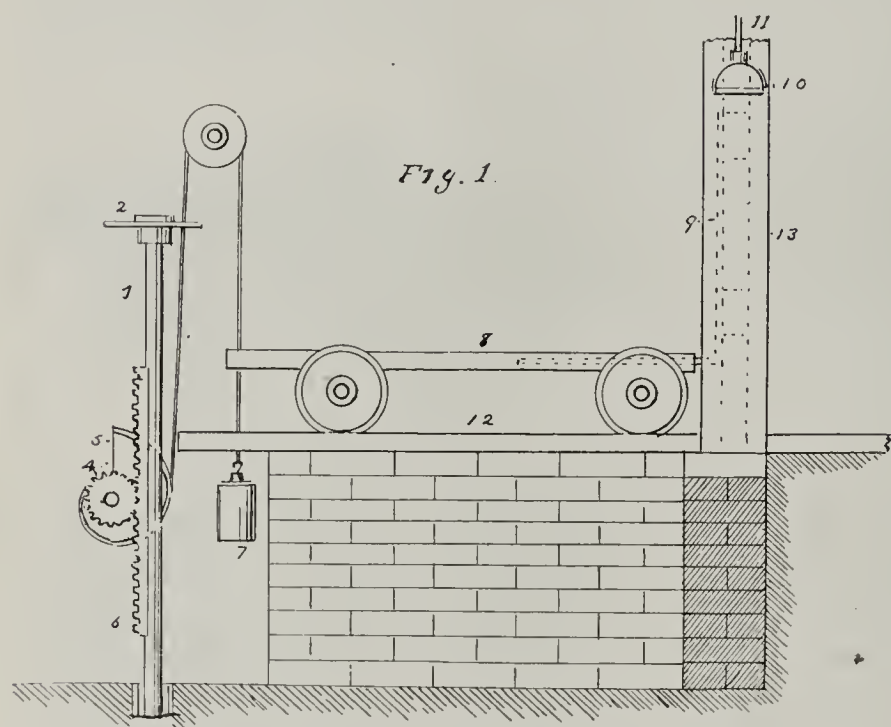
If the principal building materials used in the new Whitehall annex were assembled in Madison Square they would completely eclipse the Garden and Tower.

REMINISCENCES OF TILE DRAINAGE AND DRAIN TILE MACHINES.

Written for The Clay-Worker by George S. Tiffany.

THE HANDLING OF PIPE FROM THE MACHINE.

THE FACTORY of the Jackson Fire Clay Company, of Jackson, Mich., was built in 1867, and the two machines, before described, were installed therein by the writer. The devices and method of handling the pipe from the machine to the drying floor may be of interest to those who are making down-delivery tile machines or are using them in their factories. We do not see how they can be improved, for one man only was required to cut the pipe, set them on the elevator and send them to any floor in the factory, and a boy with a truck, such as is now in common use, took them from the elevator and set them on the drying floor. We give two diagrams to illustrate our statement showing how this was done. Fig. 1 is an elevation and Fig. 2 a plan of the principal features. Like figures indicate like parts in both figures. (1) is the vertical shaft, beneath the machine, having a revoluble plate (2) on its upper end and a rack (6) on the side, bearings for the shaft and a handle for operating

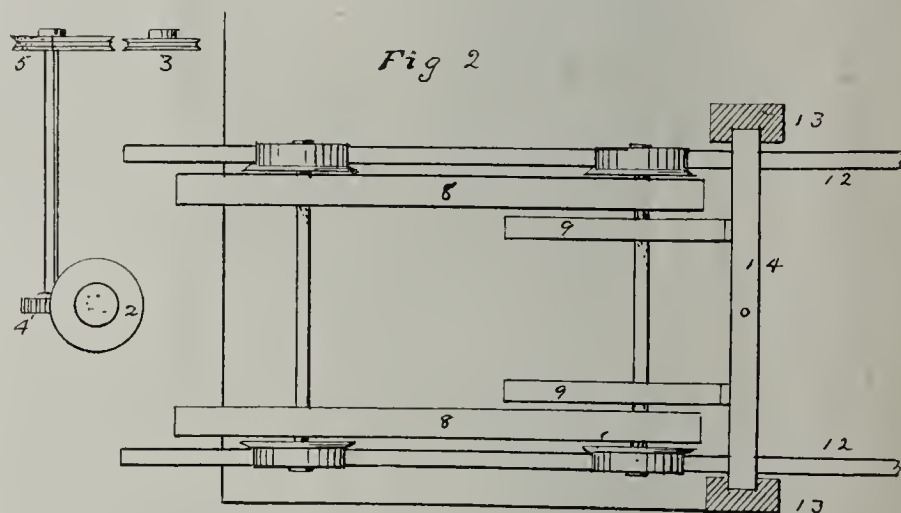


it not shown. This shaft is counter-balanced by a pinion (4) on a horizontal shaft and on the same shaft a scroll-shaped pulley (5) having a cord or chain fastened to that part of the face of the pulley nearest the shaft and passes upward over a sheave (3) and is attached to weight (7), has a constantly increasing leverage as the pipe is formed, so that the shaft and the pipe were a little more than counter-balanced by the weight (7), thus supporting the pipe while being cut off. A car having projecting bars (8) (8) stands on a track elevated above the floor of the pit, but arranged so that the top of the car is level with the lower floor. The track (12) (12) passed between the standards (13) (13) of the elevator. The elevator was made of two pieces of scantling (14) and two L-shaped pieces of iron (9) (9). When the elevator was down the L-shaped arms lay between the bars (8) (8) of the car, but the car could pass under the elevator. A rope (11) extends to the upper story, passes over a sheave and the lever of a friction clutch pulley, to which it is attached by a short rope over another sheave, and suspends a weight, the dropping of which disengages the friction clutch. On each floor are two hinged bars so arranged that the board on which the pipe rests on the elevator will raise them, but they will imme-

diately drop beneath the board and prevent its going down with the elevator.

The operation is as follows: The workman puts a board on the plate (2), raises the shaft until the board meets the forming pipe, draws the car forward, cuts off the pipe by means of a cutting frame moving with it, lowers the shaft until the board rests on the car, pushes the car away, puts another board on the plate (2) and raises the shaft until the board reaches the pipe. While the pipe is forming he pushes the car toward the elevator until the pipe is over the bars (9) (9) of the elevator, seizes the handle (10) and draws the starting rope down until it is caught by a latch, when he steps back to his first position to cut another pipe. The elevator ascends, leaves its pipe and descends automatically.

Every part of the device worked nicely, and I have never seen straight pipe handled so cheaply, but the auger machines were not so well adapted to the making of the socket as the steam press, and the steam press won in competition because we had to make socket pipe. Now that there is a demand for large drain tile—that is, pipe without sockets—the auger machine of the down-delivery type, with the devices for handling herein shown, is superior to the steam press for the purpose.



"No. I do not want your machine, for I can make pipe faster with the steam press," said one to whom I was endeavoring to sell a machine. "True," I replied, "but I can make the pipe for less than it costs you to prepare the clay and get it into your steam press." This was forty years ago, but I believe it is true to-day. The socket is a very expensive part of the pipe. The down-delivery auger machine could take the place of one of the auxiliary machines used for preparing the clay for the steam press and deliver straight pipe, and the pipe can be taken to the drying floor without touching a hand to them. The reader can readily see that this automatic elevator makes the down-delivery auger tile machine a successful competitor of the steam press for making straight pipe.

But why could not the care for receiving the pipe and the automatic elevator be used with steam presses? We believe they might, and effect a great saving of labor in handling the pipe, and of floor space required to run the platform cars from the steam press to the elevator and from the elevator to the drying floor, and for taking the dry pipe to the kilns. The two kinds of work very frequently interfere with each other, and when they do the workman sits down on his barrow and in a spirit of fine content waits for the elevator. Effort should be made to make all the operations constant, and this has been already done with the down-delivery tile machine.

The power elevator is quite a modern invention. We think

we can remember very nearly where it was first used for hotel purposes. The event was impressed upon our memory by the saying of a wag on a North River steamboat, who was telling a lady of his acquaintance about the wonderful things he had seen in New York. "Now, Mary Ann, you won't believe it, I know you won't believe it, but it is a fact, they go to bed by steam in New York."

Curves and Traps.

Some new and improved forms of clay products were made by the Jackson Fire Clay Company. They were made possible

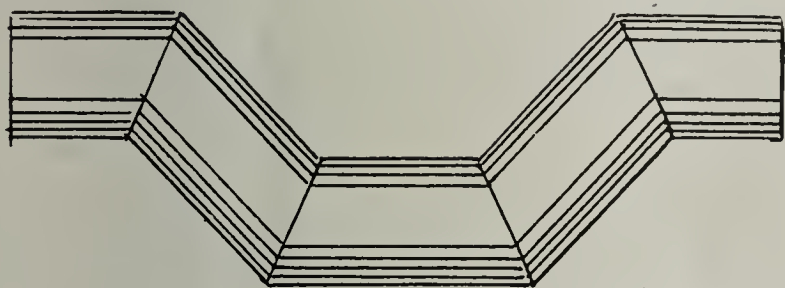


Fig. 3.

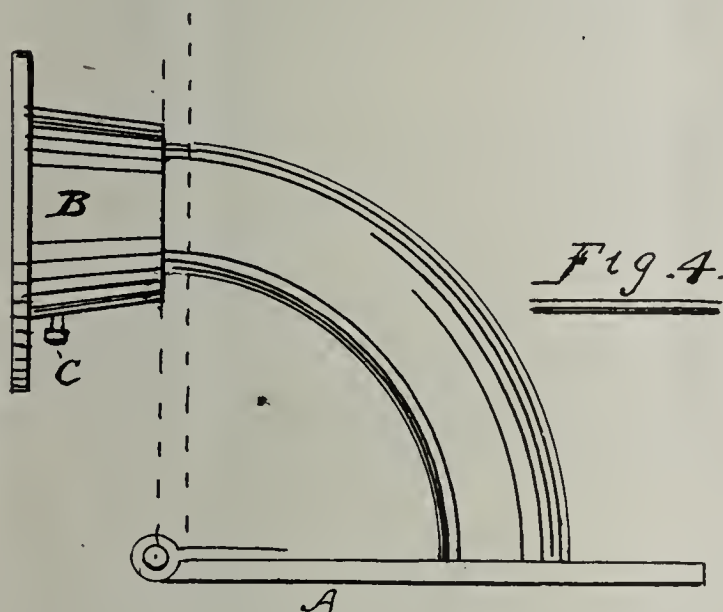


Fig. 4.

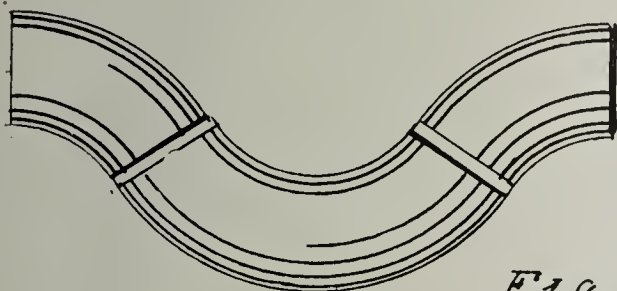


Fig. 5.



Fig. 6.

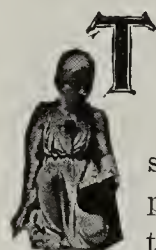
and perhaps suggested by the working of the smaller tile machine. If the curve of the die was a little out of center, the machine would make curves and nothing but curves. By taking hold of the pipe as it issued from the die, by a gentle pressure one could cause a curve to be formed in any direction. The rotation of the core caused the curve to be formed in slightly spiral lines, and in order to prevent this a steel pin (C) (see Fig. 4) was passed through the funnel (B) of the dies and screwed into the core. By hinging a board (A)

beneath the die so that when turned upward it would be in the position shown by the dotted line, and starting the machine, a curve would be formed whose radius was the distance from the center of the hinge to the orifice of the die. Any number of curves could be made practically alike, so true that they might be used for architectural decorations. An opportunity was soon offered to use this valuable feature.

The company commenced work by imitating the products of other factories in common use. One of these was the primitive form of the S trap shown in Fig. 3. I think it is an obsolete trap; if not it ought to be, for its many pieces make it difficult to make, and its many angles make it liable to clog. It was made of five pieces of straight pipe cut at an angle of 45 degrees, the ends wetted and kneaded together. We never made one like it. The first trap we made is shown in Fig. 5, made of three curves and two joints, which was a great improvement over the primitive form shown in Fig. 3. This improvement naturally suggested to the writer the possibility of making the machine make a complete trap. All that was necessary to make it do the molding was to have some method of shifting the funnel of the die upward and downward. We talked the matter over, Mr. Ralph Cornable and I, and after I had severed my connection with the company Mr. Cornable practically developed the plans and made complete traps with the machine, the first time, I believe, it was ever done. Compare No. 3 with No. 6 and consider the difference in the process of making. A complete trap could be made with the machine in less time than a workman could join two pieces of No. 3 together. Mr. Cornable, than whom I never had a more agreeable associate, should have credit for this, and also for the designing and arrangement of the parts that made the elevator automatic. After I had described the general plan he said: "Well, you attend to the machines and I will attend to the flip-flaps."

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



THE USUAL dull building season is still in force in this city, but, owing to unusual conditions, the brick people are not having nearly so dull a season as other building material dealers have been putting up with. In the first place, early this year there was a regular shutting down on speculative building, where Eastern loans had previously been depended upon for a part of the money, these loans having been withheld. This caused contractors who were building rows of houses and selling them on the installment plan to curtail their operations. A good large percentage of these houses were of the frame variety, or veneered with brick or stone. There was also a holding up of brick business structures early in the year, owing to difficulty of getting loans, but a good many of these buildings, which had been planned a year ago, and upon which operations were expected to begin early last winter, have now begun construction, and this accounts for the increase in the amount of the building permits for both July and August as compared with a year ago. The August building permits showed a decided decrease in frame buildings and a big increase in brick structures, both in number of permits and amount, there having been forty such permits this year, as compared with thirty last year, the total value being \$506,500, as compared with \$431,000 last year, or an increase of about \$75,000. Brick firms report that this does not mean a great deal of new business for their contracting departments, for contracts were made long ago for the brick when the jobs were expected to start earlier, but they are busy making deliveries of the brick now, so contracts are being filled, even if they are not new contracts. The local plants are generally busy and expect to continue busy until cold weather, but still there are not as many being used at the present time as there was last year. This is accounted for by the fact that fewer brick are being brought in from Kansas,

as the prices have been forced down to the point where only a few of the Kansas plants can afford to ship them to this market. Dealers in this city state that they must buy brick at \$3.50 at the Kansas plants in order to lay them down here at a price which will give them any profit for the handling, as they are sold here f. o. b. cars for \$6.25.

Some effort was made a month or more ago by some of the Kansas gas belt plants to sell in this market direct to the contractors, but efforts in this direction did not seem to meet with much success, as the largest jobs figured on went finally to the Kansas City plants. It is evident that some of the outside plants made up their mind that local jobbers were trying to beat them down on prices in order to make a longer profit for themselves, but when they got into the market they found that the local jobber was square enough with them, but must have lower prices to get the business with or they could not meet competition.

Builders in this city seem also to be realizing slowly that brick as a building material seems to have taken a similar place to sugar in the stock of the retail grocer. Brick makes advances and declines, but they move more slowly in either direction than other lines of building material, and it is the consumer who gets all the benefit from the declines, the same as in sugar. Not like sugar, however, there are many sources from which brick come, they not being under the control of a trust, the only thing that could smack of trust methods being the shutting out of outside brick when the demand is not stronger than the home plants can supply, and this is not done in a manner to create criticism from builders, for the prices are merely shaved to the point where outsiders cannot afford to ship, and this is done for the purpose of keeping the local plants in steady operation, with forces of regular men, so there will be everything in readiness to reap a profit when there is demand enough to allow prices to slide back to regular places.

For several years there has been a much greater demand for paving brick in this section of the country than could be supplied, and every brickmaker should try to get into the paving brick class if his brick will stand the tests. There is a large field in this direction, and prices are such that every care can be exercised in the manufacture and selection. Rattler and other tests are being made by almost all the cities, so the product of the plant, when once accepted, only needs to keep up to its own standard as set by the test brick. A number of factories in this section of the country now devoting their entire attention to face and common brick are said to have a good quality of shale for paving purposes, and the demand is fully as urgent for them at the present time as at any period in several years.

The Pittsburg Brick Company reports its plant in steady operation in Pittsburg, Kan., but the orders continue to come in for their well-known pavers so rapidly that there is always a bunch waiting for delivery. This is what happens to a brick factory when it once gains a reputation for turning out good pavers.

The Kansas City Hydraulic Pressed Brick Company is still operating all its plants at full capacity, and is crowded to keep up with its deliveries, all its own teams being at work regularly and as many outside teams hired as can be found.

The Independence Brick Company, in which Robert Nesch, of the Pittsburg Brick Company, and Mr. Roll, of the Roll Brick Company, of this city, are interested, is expected to begin operations within a few weeks. Their starting up has been greatly delayed by waiting for some electrical machinery.

A. C. Baird, secretary and treasurer of the Kansas City Hydraulic Pressed Brick Company, left this week for a visit to the brick plants of the Kansas gas belt. He makes one of these trips three or four times each year.

The Eadie Building Supply Company reports that its August business has been better than August of last year, and the business of the year is still ahead of any previous year to this time.

K. A. W.



SOME QUESTIONS IN DRAINAGE.

"Will an open ditch be better?"

No. The less open ditches a farm must have, the better, as they soon fill and do not drain or draw as well as a tile underdrain.

"I do not see why I should dig a drain eight inches wide to lay a four-inch tile, as some do."

Well, you don't need to do it; better quit such foolishness, and the sooner you quit the better. The digging should be only wide enough to receive the tile and hold it firmly. More than this is a waste of effort.

WHERE ARE THE CROAKERS?

Where are the croakers who, a few years ago, were wont to heap, without stint, maledictions upon modern land drainage as the cause of the wide-prevailing drouth of the few years past? Surely the breadth of drainage has not grown less than it was at that time. If drainage is at fault as the cause of the drouth, why is not the growing shower withheld where land drainage exists and dispensed where it does not? No, the rain has fallen on the drained and undrained land alike. Could any of these croakers be induced to explain this, with their theory, seeming mystery?

TILE DRAINING CLAY HILLS.

It was an easy matter to convince farmers that their swamp land should be drained, and that the laying of drain tile was the best method to accomplish the work; but it has been a difficult task to convince some farmers that tile laid three or four feet deep were more effectual than when laid at half that depth. But slowly large tile laid deep is gaining ground in the confidence of the farmers. They yield to the logic of results and care little why it is so. But there are a few practical farmers who are not convinced, as yet, that it is good economy to spend money in draining clay uplands which have inclination enough to secure surface drainage. The time is in the very near future when farmers will be convinced by their own observation that a clay subsoil will hold water enough to saturate the soil to within a few inches of the surface, even when the ground is quite undulating. Such saturation, even though it may be below the depth reached by the plow, will keep the soil cold by its evaporation till late in the season. In ordinary clay soils a gain of two or three weeks in the length of the crop season may be secured by judicious tile drainage.—R. T. Brown.

LAYING DRAINS.

A good outlet is of much importance to be successful in tile drainage. If the land is a dead level it may be drained if a good outlet can be secured. Underdrains will draw the water down to the level of the bottom of the tile if the water has an unobstructed flow to and out through a sufficient outlet. But we prefer a little fall when it can be had. So long as there is a pressure of water above the tile, the water will be forced out of the tile, and just so long as the soil contains a surplus of water, a pressure will exist to fill and force the water out of the tile.

The greater the surplus of water, the greater the pressure will be to find its way out of the tile drains and the more rap-

idly it will pass out. The deeper the tile are laid the farther the drain will draw on the sides, but three and one-half feet deep on a flat and five rods apart answers a good purpose. The nearer drains are laid to each other the quicker the ground will be relieved of the surplus water, as the water nearest the drain is the first to enter, and so on back from the drain as fast as there is room to receive it and pass it along the drain to the outlet.

If the drains are laid too far apart, crops may be injured or destroyed before the surplus water can be removed; hence the need of providing for a distance apart of the drains and a depth and sufficient outlet to do the work of removing the surplus water in time to prevent any damage to the crop when there are heavy rainfalls. Drains laid four rods apart and four feet deep with tile of good capacity render good service—the nearer together the better when we have a very wet time, and are better in a dry time.

It is no longer a question as to good drainage being a benefit in dry weather—that ground which is well underdrained does not bake and dry out like land that is not underdrained, and hence takes moisture from below, as well as from the atmosphere, when well pulverized and friable. The roots of all crops need air to breathe as well as water to drink, and the closer the drains the sooner the surplus water disappears and gives room for the air.

I know of no investment that will pay the land owner so liberally for his outlay as reclaiming wet waste land by putting in underdrains. A drain should be constructed and the tile laid so as to have a regular fall from head to mouth of drain. While it is true that a drain well laid at a dead level and deep enough will do good work, yet we prefer a little fall—say one inch to the rod, or more—which will overcome to some extent the uneven laying of the tile. Too much fall is objectionable; in the rush of water when the drains are running full, currents form on the outside of the tile when they are not well laid, and upset them.

Select a dry time to put in tile, as all danger of caving in is obviated, and also avoid trouble of the mud filling the tile, and unevenness in laying the tile. An important part in digging a drain is to have good tools to begin with. A common spade first, and for the last spading have a long tile spade, the proper width to correspond with the size of tile to be used, and then with a half-circle tile hoe or a pull-and-push scoop to take out the crumbs of earth and level the bottom of the ditch to a perfect plane. These tools are pretty generally kept in hardware stores. With the work well laid out, and good tools, and a will to do the best possible, are keys to success.—C. C. Young.

Written for THE CLAY-WORKER.

ARE YOU REALLY ADVERTISING?

GENUINE ADVERTISING means the placing of a good argument, arranged in attractive fashion, in a place where it will receive favorable attention from people whose trade you desire to secure, and doing it often enough so that the possible customer does not forget it. This is genuine advertising, and if the article advertised has merit, the demand for it will steadily increase.

Thousands of men think they are advertising when they are not doing so at all.

The man is not advertising who—

Sends out souvenir blotters at Christmas to his customers. Those blotters may stay on the desks of the right people for a year, but the recipient will not read them after the first day—no more than he will read the label in his hat. It becomes a part of his customary surroundings, and never intrudes on his consciousness again; and if you ask him whose advertisement is on the blotter that he uses, he will not be able to tell you. This, therefore, is not advertising, because

it fails to fulfill the requirement of conveying a repetition of the impression.

A man is not advertising who—

Inserts a big double-page advertisement in his trade paper once a year. As soon as the advertisement is published, its effect begins to diminish, whereas if the same total space had been used through the year in medium size advertisements, it would have secured steadily increasing attention, because each advertisement would have the support of its predecessors, and would be accordingly increasingly effective.

A man is not advertising who—

Runs a little card in every issue of a paper. Such an advertisement, while it may meet the eye of a possible customer, gives him no reason or inducement to make a purchase. The fact that Jones sells belts is not liable to affect him, except perhaps when he sends out a circular letter asking for a price from everybody in the trade. Meanwhile, the rival advertiser has instilled into the customer's mind the fact that his belts are waterproof and won't stretch or slip, and that they are guaranteed for ten years. When the bids are received these arguments are in the customer's mind, and tend to induce him to pay a higher price for the sake of quality, instead of taking the lower bid. The argumentative advertiser has thus secured a hearing and a chance for a higher price, which John Jones finds it more difficult to get.

A man is not advertising who—

Is clever at the expense of his argument. An amateur advertiser thinks that his mission is to attract attention, whereas his mission is really to attract favorable attention. Favorable attention does not mean that he should illustrate his advertisement with the picture of a pretty girl, unless the girl has some vital connection with the subject. How often have we seen the picture of the girl followed by the statement, "She's a beauty—So is our new type X Donkey Engine. Develops 80 h. p.; inexpensive to maintain." The girl has not helped sell the donkey engine, and has got in the way of the salesman's argument. The advertisement has attracted the reader's attention, but has not attracted favorable attention, inasmuch as the reader is not put in a mood for talking about donkey engines. Advertising is salesmanship on paper. A salesman who wanted to interview a customer could attract his attention easily enough by dressing himself like a clown and blowing a horn, but it would not help him to sell donkey engines.

A man is not advertising who—

Runs the same piece of copy continuously. If the monotony is not varied the advertisement ceases to secure the attention of the reader anew each time it appears. It becomes a part of the background, and the reader glancing through the pages instinctively recognizes it as old stuff that he has seen before, and avoids it.

On the other hand, copy should never be completely changed. It should always retain certain characteristic elements, such as an easily remembered trade mark name set always in the same lettering, or a trade mark symbol, or some characteristic trick of arrangement. The advertising must secure the effect of repetition without the repelling effect of monotony.

As a rule, a man is not advertising when he tries to do it himself.

Advertising is a profession, just like the law. It is easier to waste money in advertising than in any other way known to man, and the ability to run a factory is not necessarily a qualification for the task of preparing an intelligent advertising campaign, whether large or small.

If you are doing your own advertising, stop and think a moment whether, if you were to apply in humble guise to another manufacturer, you could get a job as advertising manager for him.

Pugilism is not a thing to be particularly proud of anyhow, and now we have drawn a black line through it and expect to forget it.

Written for THE CLAY-WORKER.

EXCELLENT VITRIFIED BRICK PAVED HIGHWAYS.

CUYAHOGA COUNTY ROADWAYS THE ACME OF PERFECTION IN ROAD BUILDING.

THE MODERN MECCA toward which the vitrified brick manufacturer makes pilgrimage is Cuyahoga county, Ohio, for there he finds as a shrine more properly constructed brick roadways than in any other county in the United States. And he does not travel alone, for in these latter days he has learned that much profit cometh by unselfishly guiding his fellow-man to this fountain of truth and light.

The pilgrim himself is gaining great knowledge from the builders of the shrine, and chief of all this wisdom is that the standard specifications of the National Paving Brick Manufacturers' Association, when strictly adhered to, will produce a vitrified brick pavement that stands forever an unchanging advocate of brick as the permanent roadway.

Almost every city and many hamlets contain brick streets that of themselves are guide posts warning the seeker after information against the use of brick as a paving material. And this alone should impress upon the manufacturer of paving brick the importance of Cleveland and Cuyahoga county as a means of demonstrating the fact that proper construction is an absolute essential in the building of brick pavements. For the manufacturer may point with pride to the four hundred miles of vitrified brick pavement in that county outside the city of Cleveland that must be recognized as the permanent roadway possessing more nearly all the characteristics of the ideal than any word produced with human hands.

It is true that there are here and there over the country cities whose public officials have recognized their obligation to the taxpayer and have conscientiously sought to produce permanent street improvements, with the result that intelligent direction of public work has produced first-grade brick streets. And no slight is directed at such cities. All honor to their officials! But at no other point in the country is found so extensive an application of the proper methods of construction as in Cleveland and the county in which the city is located. The brick manufacturer, then, finds there his most effective argument in the continuous miles of excellent pavement that speak for themselves.

If it were possible to transport to that city all the property owners on any street about to be improved, neither argument nor persuasion could prevail against the selection of vitrified brick as the material. But this being impractical, it remains for the friends of brick to study the conditions in Cuyahoga county at first hand, and to arm themselves with information concerning the means which brought about the condition, and to impart this as missionary doctrine whenever and wherever even a few may be brought together to listen. And woe be unto the maker of bricks for paving purposes who fails to make the pilgrimage and to carry away and to spread the gospel!

The system adopted by the county officials of Cuyahoga county contemplated first the paving of the main thoroughfares leading out of Cleveland, and afterwards the paving of cross roads spreading over the entire county. The chief roads radiate from Cleveland as a common center to the east, south and west. The development of the county's excellent road system is due largely to the public spirit of the citizens who petitioned for the improvements and willingly paid taxes and assessments. The officials provided for the best engineering

and devoted the necessary time for the rigid inspection of the work. The system of inspection is so rigid that it is now practically impossible for a contractor to neglect to carry out any part of a contract. Poor work or substitution of inferior material is quickly discovered.

The soil of Cuyahoga county roads, with few exceptions, is clay. On unimproved roads the nature of the soil is practically prohibitive of profitable or satisfactory travel for six months of the year. Except for the plank roads and a few miles of sandy loam base, the county was practically cut off from Cleveland in the wet months, before the improvement of the roads.

At first the county attempted to macadamize some of the roads. But these were found to be utter failures, because the large cost of maintenance resulted in their neglect. Thirteen



Ansel Road—Three years old. Sand foundation. Cement filler.



Schaaf Road—Broken stone foundation. Cement filler. Completed 1907.

years ago the commissioners decided to experiment with vitrified brick. South Woodland Road and Wooster Pike were built. The material in those days was not up to the standard of to-day, however, and this fact, together with a lack of inspection and drainage, prevented the roads from coming up to expectations. Again the commissioners—new ones—tried macadam, but the automobile traffic soon proved such pavements to be impracticable. Later bitulithic was tried, and this proved a costly experiment, for the pavement soon deteriorated.

Finally the modern method of brick construction was found, and to-day practically no other pavement is laid in the entire county. The plan of improvement which has been proven to be most satisfactory provides for a fourteen-foot vitrified brick

roadway, cement filled and curbed at both edges, while a ten or twelve-foot dirt roadway is graded off at one side. This is to give to the farmer the privilege of driving on the dirt in good weather. As the dirt roadway is seldom ever used in wet weather, it remains in good condition at all times. The brick roadway is built on a concrete foundation with a two-inch sand cushion on top of it. The interstices are filled with cement filler.

Andrew B. Lea, now public service commissioner of Cleveland, and formerly county engineer, built many of the brick highways, and has no hesitancy in declaring that brick pavements, properly constructed, are the cheapest and best.

"I have had experience in the construction of several hundred miles of pavements of different types," said Mr. Lea recently, "and I found that the ideal pavement for country roads was brick."

Mr. Lea's conclusion as to the use of various materials for

fifteen years, but it is too slippery for rural highways and costs too much.

"Stone block is an ideal pavement in every way except cost and noise.

"Brick is the cheapest and best pavement that can be used, all things considered except noise, and as the homes in the outlying districts are generally back some distance from the highway, noise ceases to be an objection."

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

SEVERAL LARGE building contracts have been let this month, and the total building permits will exceed those of July. The work will be started within a few days on the construction of the first three stories of the twelve-story building to be erected on Third avenue and Pine street by J. E. Boyer for the Sherman, Clay & Co. music house. The contract for the steel and concrete was let to Frank Allen, Inc. The cost of this improvement will be about \$75,000. The outside of the building will be paving brick, with terra cotta trimmings. The new McCormick Hotel is now nearly under roof, and is also trimmed with paving brick and terra cotta. The building brick business has been somewhat improved this month. Very large amounts of brick are shipped by scow to Vancouver, B. C., where there is a shortage of common brick.

The city of Seattle will spend millions of dollars to keep a clean supply of water, and has started condemnation proceedings in the Superior Court for the acquisition of 35,000 acres of land in the Cedar river watershed. The tract to be acquired includes the town of Taylor, which has been long a source of trouble of pollution. The Denny-Renton Clay and Coal Company's holdings are at Taylor. Their main brick plant and also their clay and coal mines are located there. The plant will probably be wiped out of existence through the proceedings, and possibly the plant will have to look for a new location.

A receiver has been appointed for the Enamel Brick and Concrete Company of Seattle, with a plant at Richmond Beach. Judge Frater appointed John T. Holloway receiver. The plant, which was promoted by Iowa concrete patent parties, has never been in full operation, and has only turned out very limited amounts of material. The brick made were never as good as the samples shown, and the amount of money spent in installing the plant is quite considerable. The officers of the company are Seattle and Mount Vernon parties.

In order to encourage the beautifying of their homes, the Denny-Renton Clay and Coal Company has distributed cash prizes among their employes at Taylor for the best kept lawns and premises. Frex Axtell, the chief engineer, this year won the first prize of \$50; James Kelly, miner, the second prize of \$25. The total amount distributed was \$300.

The construction of new buildings in North Yakima has passed the \$200,000 mark. In the first seven months of 1910 North Yakima people have erected 115 new buildings, costing \$206,225. The increase is about 60 per cent. more than the year before.

The Jovita Brick Company, which started last month their first kiln of brick at Jovita, has also been incorporated, with \$10,000 capital. J. H. Robblee is president and A. F. Dickson secretary of the new company.

The Chewelah Brick and Lime Company has been reorganized, and E. Oppenheimer has bought a half interest in the plant for \$16,000. The plant will be enlarged and new machinery installed. The company has so far made this year over 4,000,000 brick, of which 3,000,000 has been shipped.

The Carbon Coal and Clay Company, of Seattle, is a new



Warner Road—Completed 1909. Heavy grade. Paved with Hillside Block.



Miles Road—Crushed slag foundation. Cement filler. Laid 1906.

country road paving is as follows: "After considering the different types of pavement for use in urban and rural construction, I find that the macadam and telford construction are not advisable in territory which is thickly settled, in clay soil, or where they are subject to much automobile traffic. The cost of repairs and maintenance prohibits their use from an economic standpoint.

"Asphalt is too smooth, being dangerous for rural highways. Its life is not to exceed ten years, and its cost makes it almost prohibitive.

"Asphalt block pavement, by reason of the uncertainty of manufacture of materials, has not proven a success. The cost makes it prohibitive in rural construction.

"Wood block pavement can be depended on for at least

corporation which will erect a new paving brick plant at Bayne. C. G. Bayne, president of the Green River Coal Company, is at the head of this new company. Associated with him are A. B. Robert and William M. Godfrey. The capitalization of the new company is \$750,000.

The Weston Brick Company, of Weston, Ore., has been awarded the contract for the brick to be used in the Columbia College at Milton, Ore. The contract called for 300,000 brick.

Gustav Voelcker will start at Deary, Idaho, a brick and roofing tile plant. The clay suitable for such material has been found a short distance from Deary. The plant will employ twenty men, and will be in operation this fall.

The old Houston brick plant at Hangman Creek has been taken over by the Spokane Brick and Tile Company, a new company which was recently organized in Spokane with a capital of \$100,000. Joseph S. Houston is president of the com-

pany and Dana Child, of the National Bank of Commerce, is vice-president. The new company will spend between \$30,000 and \$50,000 in improvements.

The Standard Lime and Brick Company will erect a modern plant for the manufacture of common and vitrified brick, sewer pipe, roofing tile and terra cotta at Missoula, Mont. The company was organized by Allen J. Olsen, of the firm Olsen & Johnson, who will act as president, D. Hughes is vice-president and Fred W. Kalor secretary. The capital of the new company is \$60,000, of which about \$30,000 will be spent on the new plant.

There is considerable talk of establishing a brick plant at Lewiston, Idaho. J. Woekler, of Red Wing, Minn., has been investigating the local clays, and will try to organize a company. Mr. Woekler intends to manufacture brick and tile.

Seattle, September 1, 1910.

SIWASH.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

Can you inform us why our plaster paris molds do not turn out uniform ware? That is, they turn out pock-marked ware. At the same time the molds do not draw out the moisture uniformly.

The cause of the uneven ware of the plaster molds lies in the fact that your plaster is not ground fine enough or uniformly enough. The coarse-grained particles of plaster attain a firmer texture, and thus cause the pocks in the ware. It is not such a simple matter to make a good plaster mold, and it takes a man that uses a little care coupled with some judgment. I have seen in some works a great carelessness displayed in preparing plaster for casting molds, in that the employe threw the plaster by the handful into the water and began stirring the mixture before the plaster had an opportunity to soak up very much moisture. With such a proceeding, is it a wonder that poor molds are the result? The plaster should be sprinkled easily into the water and stirred carefully, so that it will be a nice cream and free from air bubbles. Plaster paris manufacturers generally make a special grade for molds, and the ordinary land plaster should be avoided. It is also advisable to abstain from using any substance said to prolong the life of the plaster mold by increasing the density and in turn the durability, for the uniform porosity of the mold effects equal sucking out of moisture, and closer pore space retards absorption. With plaster paris it is just like anything else—it pays to use the best you can buy suitable to your specific purpose.

It may be, too, that your burning proposition does not permit of setting your roofing tile criss-cross, one row on top of the other. With such clay as yours the shrinkage may cause warping, as the tile are then so tightly bonded that the shrinkage cannot follow up uniformly. If your experience shows that such is the case, then would advise you to box in your tile so that there is no weight resting on the tiles, and such tile is able to shrink as a unit.

There is not much leeway in our roofing tile clay between vitrification and giving way. Will putting in grog from damaged tile do any good? Will slipping be of material benefit?

There is no line of clayworking where it is more necessary to have thorough examination made of the raw material than in roofing tile clay. There is no good opportunity to work off the poorer or damaged grades of tile like there is with brick or sewer pipe, or, for the matter of that, drain tile. A roofing tile is either good or not, and even if the manufacturer succeeds in working off this poor tile at a lower price, the fact

that the tile roof is not perfect condemns the same, and the question whether the tiles were sold as seconds hardly ever enters into the statement. It is not of the greatest importance how much the clay shrinks in drying, but the burning shrinkage should be as little as possible, and furthermore, the product should stand up well in the fire.

Now, in your case the addition of burnt roofing tile grog would have an influence on the drying part, but just as soon as you would reach the desired high temperature, then the undesired features would come about just the same. The proper thing to do would be to find a clay that is in all ways desirable for a roofing tile. And this is not such an easy thing to do. For instance, the writer has been informed that one of the leading roofing tile manufacturers intended to start a new additional roofing tile plant, and they tested and experimented with over two hundred and fifty kinds of clays before they found one that was suitable to their mode of manufacture. However, it might be worth your while to find a new clay that will stand up better in the fire, and, with the proper mixture with your old clay, give you a composite clay, one that would stand up properly in the fire. If such a mixture should damage the desired color, it might be well to slip your ware, but the slip should be prepared in such a way to meet your condition. As a whole, I am not much in favor of slipping roofing tile, because there is too much temptation to underburn the body. However, a slip is generally put on roofing tile to hide porosity in the body and to give the tile surface a vitreous or semi-vitreous body, so that the tile will stay approximately clean. You may look at these conditions by hypothetical cases:

Case 1. A clay will stand up well under Cone 10, but to improve the color a red-burning slip is applied that will also mature at Cone 10.

Case 2. A manufacturer whose clay was defective in that the viscous vitrification and maturing point lay close together. If burnt at the lower temperature the body was not burned hard enough to withstand the ravages of frost—say also at Cone 10. A slip maturing at Cone 6 was applied that made the tile look all right, but this fact did not improve the body of the tile.

Case 3. A roofing tile manufacturer used a clay that had the defects as in Case 2. But this manufacturer, for the purpose of improvement, mixed his defective clay with a clay that burned to a dense body at a lower temperature, and the viscous vitrification temperature was very high. Such a judicious mixture enabled this manufacturer to turn out first-

class roofing tile, and the detrimental factors of fusion and warping were entirely removed.

Are "hot crowns" or "hot tops" in down-draft kilns caused by too rapid firing in bringing the kiln up? Also, is it caused by dampering heavy too early on the kiln, when a hot crown becomes "set"? Is there a known way to draw it out without cooling down, and is not a kiln of brick more or less permanently injured by a hot crown? Any information in *The Clay-Worker* on this subject will be noted with very great interest.

The hot tops in the down-draft kiln may be caused by a number of reasons, the effect remaining the same, namely, the heat does not leave the top. That the draft is not strong enough to pull the heat down from the top may be one reason. That your brick are set too close, so that the draft is impaired, may be another reason. Wet kiln bottoms may be another reason, in that the volume of steam may then be so large that the stack cannot carry it with the products of combustion, or the steam so formed may cool off the stack so much that it loses draft power. It may be you are firing too hard, so that the heat so formed is excessive. It may also be that at such a period, by wrong firing, you induce reducing conditions, which, with a red-burning clay containing iron, create a detrimental factor of 200 degrees Fahrenheit less than such a clay would stand under oxidizing conditions. However, some clays and colors demand light fires often under oxidizing conditions, and other clays and colors demand heavy fires under reducing conditions. Then the dampering and firing should be different for wet process ware than for dry clay products.

You may safely pull the heat down from the top, if you follow out the usual precautions and not let your top "freeze" too long. If the heat is properly moved away from the top, then no harm will be done, as the fact of the matter is it resolves itself into what is called "firing in pinches," where the heat is carried down in so-called "heat waves." The writer has burned brick in this way, bringing down Standard Cone 9 on top and Standard Cone 8 on the bottom, with the brick set 40 to 42 high on the flat. Your setting should be done as close as is consistent, as wide flues are apt to cause "fire flashes." Low bag walls may be a cause of your troubles, too. Then the proportion of setting to openings in bottom, or flues as related to stack, may not be in the proper proportion or right position. Then again it may be that your stack is too small or not high enough. The writer trusts that the above pointers will be "guide posts" on your burner's journey. However, besides that, I should advise you to settle on Standard Cones for determining your proper heats, and besides use a draft gauge, so that you can measure your fluctuating draft, and then, after you have determined the proper draft to use, the draft gauge will give you the means to control the same. By doing this a great deal of the "guess" work feature of brick burning will be eliminated.

We have attempted to make salt-glazed sewer pipe, but we have had no success, in that our clay breaks down at the heat it takes the volatilized salt vapor to form a glaze. Can you give us any information on this subject?

It is well known that it takes a high temperature to volatilize salt for a glaze, yet the fact is that in Europe glazed sewer pipe are burned as low as Standard Cone 04 to 03. The maximum temperature employed there is Standard Cone 10, and the fact that both these kinds of sewer pipe come into successful competition with each other is proof sufficient that one kind is as good as the other. In the "Transactions of the American Ceramic Society" you can find some interesting data and information on "Salt Glazing," and upon careful perusal you can readily see why some clays, even if they will stand the necessary high temperature, are not suitable for salt-glazed ware. However, it should be borne in mind that a good glaze on the interior of the pipe is necessary, so that the moving liquid therein may travel on a smooth surface and

prevent seeping into the body of the sewer pipe, which oftentimes is not of a very close texture; the glaze on the outside is therefore of a doubtful practical value, and serves for the most part to cover a defective body. The smaller the pipe the more difficult to salt glaze the interior thereof, and sometimes manufacturers put on a slip or clay glaze to aid a defective salt glaze.

As against salt glazes which are used for or at high heats, compound glazes are applied for lower heats, and are generally set at 2 to 3 Standard Cone lower than the body will have to stand, and therefore a body that will stand up under Standard Cone 4, a glaze approximately Cone 1 will generally give good results. The following mixture approximates the composition of Cone 1 very closely:

Feldspar	42
Chalk	17
Flint	33
Iron oxide.....	8
	100

And a little black oxide of manganese may be added to give a darker color.

Another very good glaze, very dark in color, almost black, is compounded as follows:

Flint	110
Chalk or whiting.....	60
Iron oxide.....	40
Manganese oxide.....	50
Feldspar	140
	300

The maturing temperature of this glaze is at Cone 1. However, if the quantity of chalk is cut down to one-half of the above quantity, then the glaze will mature at Cone 3. It can thus be seen that increased quantity of chalk has a tendency to lower the maturing temperature, provided the proportion is kept within certain limits. For this reason chalk is added to clays when they are to be used for glazes. The following is a good clay glaze:

Clay	75
Chalk	20
Manganese oxide.....	5
	100

By changing the proportion of chalk a fine dark glaze was produced that matured at Cone .03 to .04. By judicious experimenting you may also be able to produce a nice pipe glaze by adding to your clay the correct proportion of non-volatile fluxes that will induce the proper fusing point. This is sometimes a very good proposition to follow up, as it generally results in a glaze that feeds on the body, and in that way gives excellent glaze results. But for a sewer pipe plant to try these experiments is generally a slow process, in that, as a rule, they are not equipped for experimental work. It is highly probable that you would fare better and get quicker results by consulting a firm that makes a specialty of such work. You can find such addresses in the advertising columns of *THE CLAY-WORKER*.

LIABILITY FOR PERSONAL INJURY.

An important decision has been made by the Supreme Court of Minnesota touching upon the question of liability for personal injury. The decision indicates that all danger which is apparent is assumed by the workman when he takes the job. The case was of a man working for a contractor who was removing materials from a cellar excavation by means of a steel dumping bucket supported by a bail. The plaintiff workman placed his hand behind the bail, and when the bucket dumped the tipping of the rear end of the bucket resulted in plaintiff's hand being caught and hurt. The Supreme Court says: "The true test is not the exercise of care to discover danger, but whether the danger is known to or is plainly observable by the employee."

REVIEW MID-SUMMER MEETING AMERICAN CERAMIC SOCIETY,

Held at Akron and Barberton, August 17, 18 and 19.

THREE DAYS of delightful sight-seeing, inspection tours and buttonhole talks, with Chief "Heap Much" W. D. Gates as the principal guide, was much enjoyed by the delegates attending the American Ceramic Society's twelfth mid-summer meeting. The registration was not so large as heretofore, but the twenty members in attendance apparently possessed the added enthusiasm of the absentees. The crowd was a typical, jolly, "show me" one that insisted upon seeing everything that was to be seen, and then some. The program was a most interesting, educational and entertaining one, and made the three days seem only too short for the number of immense and unusual plants visited. The Buchtel Hotel, Akron, Ohio, was the headquarters. The ceramists began to

We were cordially received by Messrs. J. J. Starr, A. R. Markle and F. W. Tweed, and under the kindly guidance of the latter gentlemen we started on our trip through the immense plant. This plant is only one of the nine large factories owned and operated by this company, which has an enviable reputation for fine grades of sewer pipe, wall coping, drain tile, flue linings, brick, stoneware, Rockingham and yellow ware, culvert pipe, stove pipe, chimney tops, etc.

This No. 1 plant makes a fine line of stoneware, Rockingham and yellow ware and glazed specialties. The factory is complete in every respect, and unusually interesting to visitors. The party began its inspection tour with a visit to the clay preparing rooms, where the usual line of machinery, such



Finishing Fifty-Gallon Jars at the Robinson Clay Product Company's Plant No. 1.

arrive early Tuesday evening, so that by Wednesday morning the party consisted of fourteen members, while the late comers swelled the attendance to twenty-five by Thursday. Unfortunately, neither Professors Orton or Purdy were able to be present, but Chief Gates, with his friendly smile and encyclopedia of good stories, was there from start to finish, and brought good luck and spirits to the gathering, save on one occasion, when his leadership proved a failure. However, it was not entirely his fault, for the party had the unlucky thirteen the last morning of the meeting, when the Diamond Match Company was to be our hosts. The factory was not in operation, so that the pleasure of making a trip through its several departments had to be postponed indefinitely.

The Robinson Clay Product Company's Plant No. 1.

Early Wednesday morning the crowd of ceramists boarded a trolley near the hotel, and after a twenty minutes' ride alighted in front of the office of the Robinson Clay Product Company's Plant No. 1.

as dry and wet pans for grinding, blungers, slip pumps, mixers, filter presses, etc., were in constant operation. Much time was spent in the large jar department, where sixty-gallon jars were being made in an immense vertical machine. We watched the men place the large round slab of clay for the bottom of the jar on the metal disc, which was raised by a large steel rod to the bottom of the press and lowered with the large cylinder of clay for the sides of the jar proper firmly united to the bottom layer. The care and rapidity with which this work is done made quite an impression on the ceramists. Another feature attracting special attention was the large metal revolving table used at the bottom of the clay conveyor for throwing the clay into the press as needed. This, it is claimed, is much superior to the flying belt, in that it throws the clay into the press more accurately and quickly. The large drying floors were next visited, where hundreds of large jars were being dried by means of radiated heat from the kilns, which are fired with gas. The radiating heat from the

kilns is retained by means of fireproof iron construction walls and roofs.

We spent much time in the pressing, molding and casting departments, and were much interested in the making of the various shapes of Rockingham and yellow wares. From the pressing rooms we walked to the hand-making jar room, where three brawny individuals were at work building up large pots and jars by hand. This unusual sight, the making of large ware from huge lumps of clay in only a few moments' time, was commented on by many delegates present. Then we visited the dipping rooms, where jugs and jars were being covered with Albany and Michigan clay slips by means of dipping the ware in large tanks or placing the mouths of the jugs under the liquid over a pump that is used to cover the interior of the jug with the slip. The delegation then visited the lining and decorating rooms, and from there on through the kiln rooms to the immense warehouses, which cover acres of ground and contain thousands of dollars' worth of ware of all kinds and descriptions in the stoneware and Rockingham and yellow ware field. The special lines were unusually interest-

time, when the hungry ceramists betook themselves back to the hotel to satisfy the inner man.

Summit China Company's Plant.

Shortly after 1:30 the crowd again got aboard a trolley for the Summit China Company's plant. Here we were received by Messrs. L. K. Force, president; C. P. Reddrop, manager of sales, and R. H. Kent, secretary and treasurer. A most enjoyable hour was spent here inspecting this interesting manufactory of semi-porcelain goods and clay specialties. The earthenware made here, while not unusual, has some very attractive qualities, their blues and light pink decorations being very pretty and artistic. We first visited the clay storage rooms and passed through the clay washing department, watched with much interest the men taking the leaves of clay from the filter presses, studied the different types of machines used in the preparation of the glazes, and finally visited the room where saggars of frit—a hard, glasslike mass, which disintegrates on the application of water and turns to a soft white powder—were stored. The sagger-making department



A Corner in the Turning Department, Robinson Clay Product Company's Plant No. 1.

ing, especially the receptacles for blocks of salt, to be used in stables on farms for cattle and horses, the bases for inverted glass water demijohns, churns, water jars, ink bottles, beer mugs, rose jars, hanging baskets, umbrella stands, lawn vases, cooking sets, fire clay casseroles, bean pots, fruit funnels, growlers, pitchers, cuspidors, coffee urns, vinegar sets, dipping baskets, syrup kegs, filters, chambers, bed pans, fire clay stove pipe, etc.

In the center of one of the large stock sheds or warehouses the jugs were being tested. Every jug is tested and proven to be in thoroughly excellent condition before shipment. In the testing a large tub of water is used, the jug being immersed to within an inch of the top in the water, after which compressed air is forced into it. If no bubbles are seen in the water the jug is immediately stamped O. K., the wire handles fastened on and the finished jugs carted away, ready for shipment.

The delegation wandered over the plant until nearly noon

was interesting, and received quite a little attention. Here they have a Brewer vertical pug mill that has been in active use for over twenty-four years. Much time was spent by the ceramists in the pressing, casting and decorating rooms, the making of the forms for dipped rubber goods, such as gloves, masks, finger cuts, nipples, rubber stamps, etc., being a surprise to many of the visitors. The kiln capacity of the plant comprises three bisque and three glost kilns, the former being 20 feet in diameter, while the latter are 25 feet each. The bisque kilns take 10 tons of coal for each burn, while the larger ones take 15 tons each. The bisque ware is burned to Cone 8.

The A. J. Weeks Chemical Stoneware Plant.

From the Summit plant the delegation walked to the Weeks Stoneware Company's plant, some of the product made being unusual in size and construction. This is in one particular an ideal plant, in so far that nothing is kept in stock and everything is sold before it has left the kiln. All the ware made is

by order, and that the plant is kept in constant operation shows the great demand for their excellent product. This plant is over forty years old, the last fifteen years being devoted to the manufacture of chemical stoneware, while previous to that time ordinary stoneware was made. They make anything and everything for handling or manufacturing acids and chemicals, varying from $\frac{1}{4}$ -inch bore faucets to 1,000-gallon tanks, which are 10 feet long, 3 feet wide and 3 feet deep, with walls or body 2 to 4 inches in thickness, and 5,000-gallon

made at their No. 2 plant, located in another part of Akron. Eight different clays are used, a few local, but the majority foreign. The local are fire clays. The clays are stored in separate bins and ground and mixed in batches as desired in the chaser wet pans made by the Taplin-Rice-Clerkin Company, of Akron, Ohio. The ground material is also screened and pugged in Taplin-Rice-Clerkin Company's machinery. Washed clays to be used are washed separately, filter presses and blungers (made by the East Liverpool Machine and



**Mold
Making
Department.**

**Setting
A Kiln of
Stoneware.**



**The Glaze Mills
In the Robinson
Clay Product
Co.'s Plant No. 1.**

jars, which are over 5 feet in diameter. As no stock is kept, and all ware is made and designed from blue prints and sketches, the plaster forms for the small products are made at the point in the plant where the ware is to be made. The large pieces are built by hand a few inches at a time. Different clay mixtures are used for different pieces, depending on the use and size of ware. They make some porous ware for electrical purposes, but generally run on glazed ware (acid glazes being used). When salt glazing is specified the ware is

Foundry Company) and their own screening devices being used. The plant proper consists of three floors. The first is devoted to the mill and press room (Taplin-Rice-Clerkin Company's die presses being used here that will make any size desired), the second floor to the making of heavy or large pieces of chemical ware, while the third is devoted to the making of small ware. Of special interest to the ceramists was the exhibit of a large tank, 16x3x3 feet, which had been made in two pieces and was drying on the second floor. When

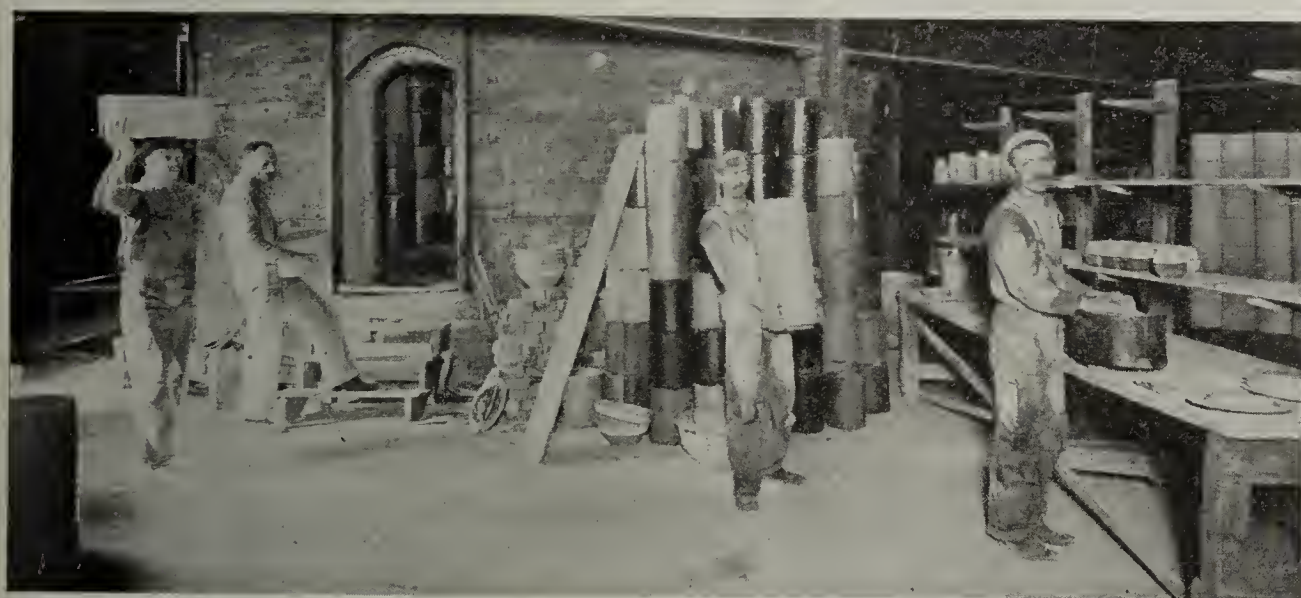
dried (six weeks) this tank was to be shoved on a board platform down an incline into a kiln, where it was to be burned with a number of other smaller chemical wares. The kiln when filled holds three carloads of products made for chemical purposes. Four days are consumed in the burning. The drying is done by means of radiated heat from steam pipes.

A kiln of fine ware had been emptied that morning, and the ware was on display. The exhibit contained large galvanizing tanks for the American Steel and Wire Company for galvanizing fence wire and pump rods; also depressors used to hold

The Standard Toy Marble Company's Plant.

From the Weeks factory a number of the party returned to the hotel. The day had been extremely hot and wearing on all of us, but four persistent ceramists desired to see the Standard Toy Marble Company's plant, and trudged a mile through heat and dust to be highly entertained for the remainder of the afternoon by Mr. J. A. Brown, the owner. This is the only factory in this country engaged exclusively in the manufacture of clay marbles. Ohio clays are used exclusively,

Glazing Rooms Of The Robinson Clay Product Co.'s Plant No. 1.



Setting A Kiln of Rockingham and Yellow Ware.

A Scene In the Crating Department.



wire in acid solution, sulphuric and nitric acid receivers for manufacturing of acids by the Grasselli Chemical Company, and acid eggs (5 feet high and 3 feet wide) for manufacturing druggists for agitating chemical mixtures.

The burning is accomplished in six round down-draft kilns, 30 feet in diameter and fired with coal. Mr. M. A. Knight, the manager of this plant and owner of the No. 2 plant, was our host, and extended a very cordial invitation for us to visit the plant again soon.

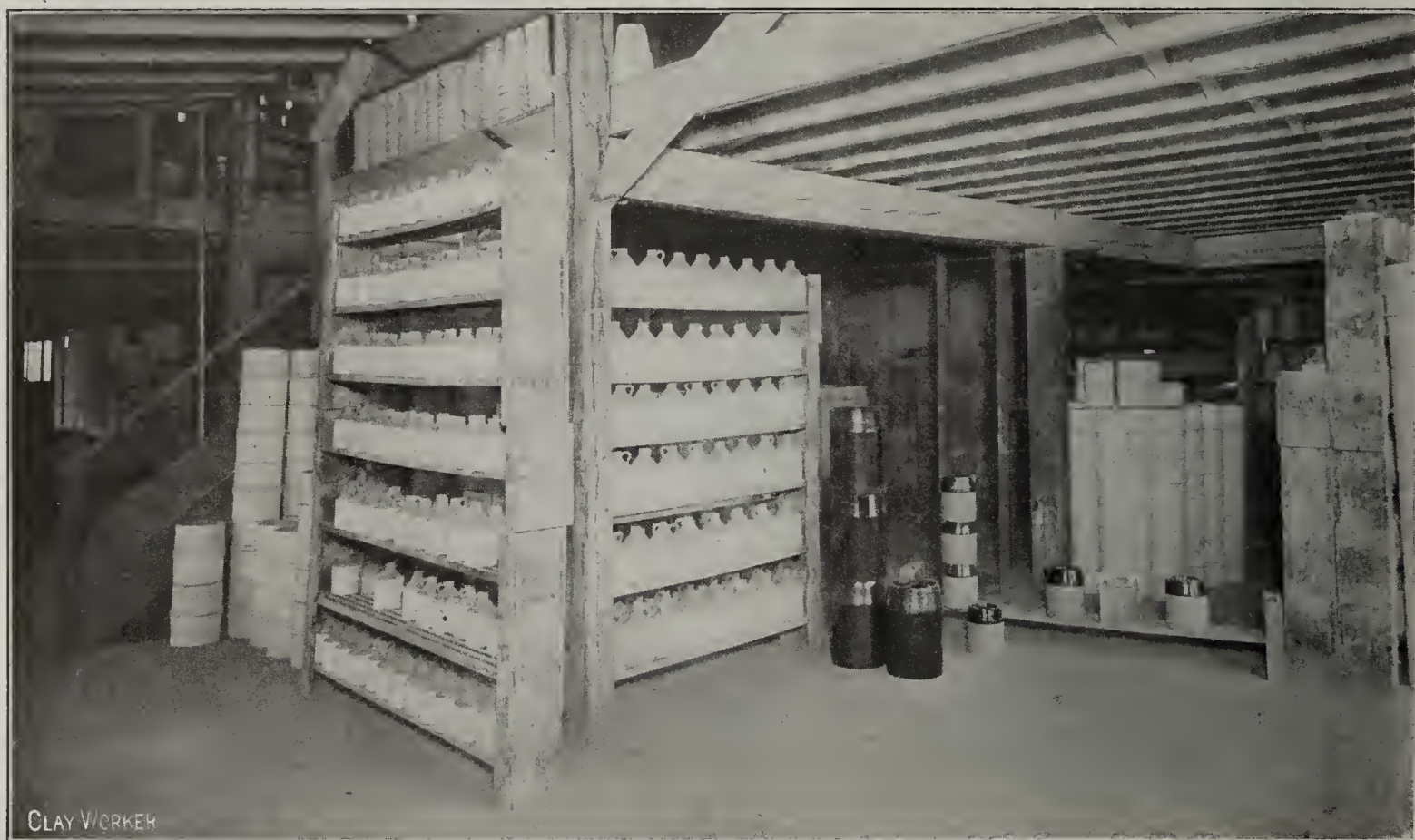
being worked in an 8-foot chaser mill, and after being thoroughly prepared is placed in a wad machine, from which it issues in strings $\frac{1}{4}$ to 2 inches in diameter, as desired. The strings of clay are placed on a cutting board, cut into pieces of the same length as the diameter. These pieces or lumps are then placed in molds which have two parts, both made of plaster. The lower part of the mold is a slab 3 feet long and 10 inches wide, with grooves of requisite size all the way across the width of the slab, while the upper part of the

plaster mold is 3 feet long and 4 inches wide and grooved in the same manner as the lower slab. The upper slab is arranged to run on guides at either end. Marbles of one size are made on a slab, there being a number of slabs each for the different sized marbles to be made. When the operator (a girl) has placed a lump of clay in each groove, she takes the upper slab and pushes it backward and forward over the other slab, thus moving each piece of clay in such a manner as to make it almost perfectly round. The balls of clay are then gathered up and placed in trays and dried on racks. After being thoroughly dried they are dumped into saggars and burned in two round down-draft 14-foot kilns fired with coal. White, colored, glazed, striped and shellac marbles are made, the shellac being put on after the marbles are burned and then allowed to dry. When the kilns are opened and cooled off the marbles are sacked 1,000 to a sack. The sacked marbles are then put in barrels. Each barrel holds fifty sacks. The sacks are made in the factory, 40,000 yards of muslin or cheap cotton cloth being used annually for this purpose. A large number of girls are employed and kept constantly at

This second plant made 1,000 barrels last year. The two plants together sold 175,000,000 marbles.

Trip Through Goodrich Rubber Company's Plant.

At 9 o'clock Thursday morning the delegation, headed by the Chief of Button Holers, boarded a car for the B. F. Goodrich Company's plant. Here the whole of the morning was spent in one of the most interesting and educational tours the society has ever made. This immense plant is the largest mechanical rubber factory in the world, being the most extensive institution now in operation the output of which represents every kind of rubber product, except insulated wire and rubber clothing, other than boots and shoes. In all its departments it employs over 5,000 people. The several large buildings at the company's Akron plant cover a ground area of twenty-two acres, including a floor area of twenty-seven acres. The floor space is perfectly lighted and accessible for night as well as for day labor, there being 10,000 lights and 135 of the arc type. The night shift consists of 1,000 men. This tells but little of the magnitude of this large plant, and, though we



One of the Many Stock Rooms of the A. J. Weeks' Chemical Stoneware Plant. Note Group of Patented Jugs on Floor.

work cutting the cloth and sewing the sacks. In sacking, the marbles are not counted; the weights of each sack are taken, and as each sack contains one size only, the weights are checked up with the known weights of filled sacks of various sized marbles. Only the cheaper grades of marbles are sacked; the better grades are put in boxes. The company lately filled an order for 1,000,000 marbles $1\frac{1}{2}$ inches in size. This order was filled in twenty days with seventeen girls working on same. This order was shipped in 334 barrels.

Last year in the busy season they made 750,000 marbles daily. The common playing marble, while a big item in their business, does not take up their entire attention. They manufacture a high-grade marble for lithographers, chemical companies, rubber workers, confectioners, ceramists and many other manufacturers, such as colored marbles for door mats and white marbles for color mills, ball mills, etc. The marbles are also used in oil cans for valves. Last year the company supplied 2,500 barrels. Since there are 50,000 to the barrel, a grand total of 125,000,000 were shipped. There are only two plants in the country making marbles, the second making them only as a side line and during the winter months only.

spent almost three hours in a hurried trip through several of its departments, we did not begin to see half of this most interesting manufactory. Mr. W. K. Means, assistant secretary in the general superintendent's office, and Mr. M. H. Hill, secretary to Mr. Means, were our hosts, and showed us through the plant. We first visited the immense power plant, where an equipment furnishing the factory with 20,000 horse power is installed. We stopped for a moment to study the large engines and dynamos, and then walked through the boiler room, where sixteen boilers of 600 horse power each were being automatically fired. A system of coal elevators and conveyors were carrying coal up to the top of the building and along the front of the boilers, high above us, to chutes from which the furnaces are supplied. Aside from this power plant the company has a water pumping plant which supplies a 24-inch main for the plant and a 16-inch main used in case of fire. Of unusual interest to the ceramists was the system of tunnels leading from the power plant proper. The tunnels, which have a total length of 2,000 feet, are large enough for an ordinary man to walk through with ease. This system of tunnels runs to every part of the factory, housing the mains and wiring. From

the power plant we walked to the rubber belting department, where we watched with much surprise the long line of rubber belting issuing from the high-pressure vulcanizing tanks. Next we visited the department where yards of rubber matting were being made, and from there to the immense room where the raw, spongy material, which had been through several processes before reaching this point, was passing through huge steel rolling machines. Scores of these machines were in operation, the two immense rolls of each one running in opposite directions, squeezing the spongy rubber, which clung to the rolls as they revolved, and after being rolled to the proper consistency was cut off in strips, ready for its next journey through other large machines. We then boarded an elevator and visited the small rubber goods department, where 2,000

Sullivan rubber heels for shoes, rubber stoppers, nipples, etc., and last where automobile tires were being turned out by the hundreds. When we had watched the men building up automobile tires, seen the large steel molds for making molded tires, and huge presses in which twenty molds were placed ready for the high pressure which they were to be subjected to, and glanced in at the men making wire-wound hose for steam pressure, we visited the large stock rooms, where we "rubbered" at every conceivable sort of rubber goods to our hearts' content.

Colonial Sign and Insulator Company.

At 1 o'clock we boarded the trolley for the Colonial Sign and Insulator Company, where we were cordially received by



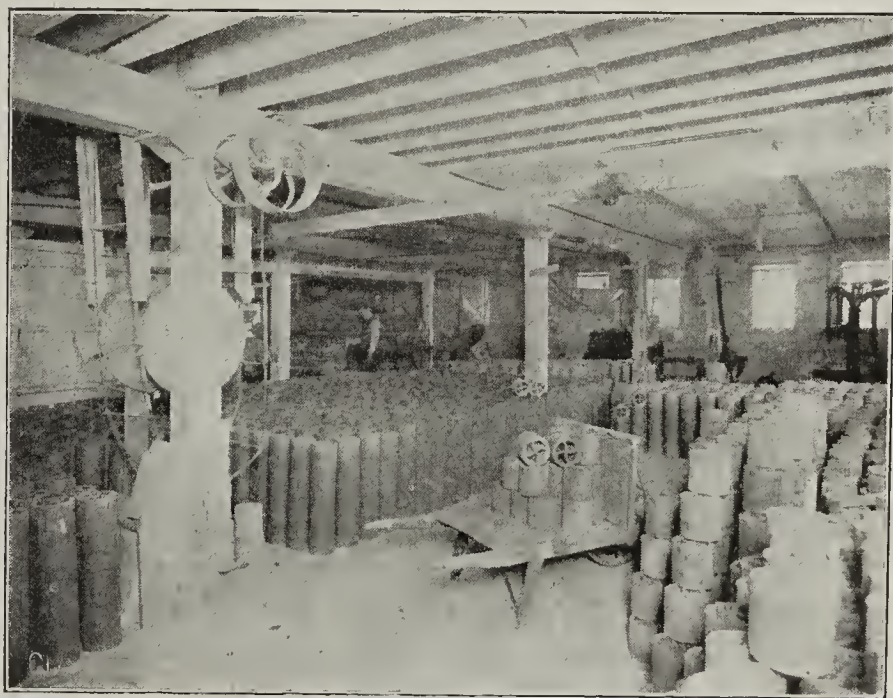
Making Large Storage Tanks, Tower Pipe and Receivers.



Mill Room, Showing Machines and 200-Gallon Jar.



A Drying Floor in A. J. Weeks Plant.



Drying Chemical Rings With Partitions for Chemical Towers.

different products were being made, including hot water bottles, football bladders, syringe bags, tubing, and almost every kind of high-grade rubber goods. At one end of the department we watched 600 girls busily engaged making rubber overshoes, each girl making thirty-two pairs daily. After twenty minutes' stay here we went over to the hose department, where hundreds of feet of almost every kind of rubber hose imaginable was being manufactured. The looms busily at work weaving canvas hose that was later to be coated with rubber, either inside or both outside and inside, were the subjects of much attention. At one point in the hose department hose of 500-foot lengths was being made and wound on large wooden spools. The next departments visited were those where molded goods are made, first the small ware like the

Mr. W. H. Motz, the secretary and treasurer, and Mr. J. R. Hamphill, the president and general manager. The latter took us through the interesting factory and answered all questions we cared to ask. This is a small but unusual plant, making porcelain specialties, such as electrical insulators and supplies, forms for dipped rubber goods, and letters for electrical signs. Eight or nine difficult mixtures are employed, the clays going through the usual washing processes. When the ground washed clays in proper mixtures are prepared, they are taken to hand presses, which scores of girls operate. Pieces for electrical insulating of all kinds are made on the presses, a large stock of dies necessarily being kept on hand. These pieces are then dried, burned and glazed, then given the final burn. In the making of the forms for dipped rubber

goods plaster molds are used. Fifty to seventy-five pairs of glove forms are made daily, while a score or more forms for syringe bags and hundreds of nipples are also made. The hour's visit here was crowded with interesting observations. After this only too short a stay we walked over to the L. W. Camp Company's brick plant, where we were entertained by R. E. Armstrong, the secretary and treasurer.

The L. W. Camp Brick Plant.

This plant manufactures fireproofing and hollow building blocks, the main work being on hollow blocks and floor tile. They mine their clay near the plant, the bank containing 10 feet of surface clay and 20 feet of shale. The shale is blasted and the two materials hauled in 2-yard cars up an incline to the plant by means of cable and winding drum. Sixty to seventy tons of clay and shale are mined daily, giving the plant sufficient material to run their plant ten hours. The material is ground in two American Clay Machinery Company's 9-foot dry pans, then elevated and screened on two piano-wire screens. The screened material is then ground in two American Clay Machinery Company's wet pans and elevated to the second floor, where it is taken on belt conveyors to the American Clay Machinery Company's vertical sewer pipe press. The hollow blocks and larger fireproofing wares are made on this machine, which has given entire satisfaction. There is a double horizontal press, made by the Taplin-Rice-Clerkin Company, which is unique in that the clay is delivered to the center of the press, from which it can be used either to the right or left, there being provision made for the use of almost any kind of die for smaller sizes of fireproofing and hollow ware. The smaller ware is made on this double horizontal machine, and in such a quantity and quality that the company is well pleased with its work. The design of this machine was made by Mr. H. B. Camp, father of the present head of the company. On the vertical press two blocks were being made at a time during our visit. The tube of clay comes from the machine just twice the length of the ordinary hollow block and is cut in two by wire in the ordinary way. The blocks are placed on platform cars holding a ton of clay, or 90 feet of 6-inch blocks. The cars are pushed into a 17-tunnel steam dryer, each tunnel holding 11 cars. Here the green ware is allowed to dry. Aside from the dryer there are two drying floors, one on the second and one on the third floor, where the green ware is also dried by radiated heat from steam pipes. Hydraulic elevators are used for transferring the cars to and from the drying floors. The ware is burned in ten 30-foot round down-draft kilns. A kiln of ware is set each day. For draft three large stacks made of small flat floor tile are employed. The stacks are 80 feet high. After a pleasant stay here the ceramists walked a short distance to the

Windsor Brick Company's Paving Brick Plant.

Here we were received by Mr. J. T. Windsor, the secretary and treasurer, and W. T. Windsor, the superintendent, both of whom escorted us through the plant. They use clay and shale from a bank at the rear of the plant. Little or no stripping is necessary. The surface clay is 4 feet in thickness. Below this layer of easily worked clay is a 65-foot vein of blue shale. The clay and shale are brought to the plant in 1 $\frac{3}{4}$ -yard side-dump cars by means of a cable and winding drum operated by a 40 horse power motor. The raw material is dropped into a large storage bin, which holds enough for six days' run of 116,000 each. The clay and shale is ground in three Taplin-Rice-Clerkin Company's 9-foot dry pans. These pans have inclined screen plates, steel bottoms, and fitted with edge-combed steps. Crown faced 5,300-pound mullers are used. The three pans are so arranged that any one can be cut out of the operation at any time by means of a toe-clutched pin. The elevators and screens are arranged in the same manner. Three Bonnot Company's piano-wire screens of 10 mesh each are used for the screening. Different meshes can be made on these screens without the loosening of the wires. The screened clay is dumped into a 360-ton bin, and passes by

means of gravity into a Bonnot pug mill. This pug mill is 14 feet in length and has a special out-bored bearing and steel cut gears. The pugged clay goes into a Bonnot "Canton Special" brick machine of 200,000 daily capacity. However, this machine is not worked to its full capacity, the average daily run being about 116,000, ten hours being consumed in the operation. Ten blocks and four builders are cut at a time on a Bonnot automatic cutting table, weighing 13 and 7 pounds, respectively, green. The blocks are sent through two 2-mold Bonnot represses and loaded on steel dryer cars. The builders are loaded onto dryer cars on the opposite side of the delivering belt. These steel cars are made by the Atlas Car Company, of Cleveland, Ohio, and the American Clay Machinery Company, of Bucyrus, Ohio. The blocks and builders are dried in a 17-tunnel dryer, twenty-four hours being required in the drying of the builders, while forty-eight hours are consumed for drying the blocks. The drying is done by means of exhaust steam by day and live steam by night. The ware is burned in fourteen 32-foot round down-draft kilns. Fourteen days are taken in the burning of each kiln. A Pittsburg coal is used for fuel.

The power of the plant is furnished by means of a 400 horse power Hamilton Corliss heavy duty engine and three 150 horse power boilers. The plant has an electric lighting plant, the power being obtained from a 100 horse power Buckeye engine and a 75 kilowatt generator made by the Akron Electrical Company.

The water supply is furnished by a 110-foot drilled well, 2,700 gallons per hour being pumped. A 125-foot round stack is located near the boiler house. This stack is built of radial brick made in the plant. The draft for the kilns is furnished by means of four large square stacks. Four kilns are connected with each of three of these stacks, while the fourth stack furnishes the draft for the other two kilns.

Last February the old plant was totally destroyed by fire. Reconstruction was begun March 2, and by May 17 the new plant was in complete operation. This shows the energy and force this company uses in its work, and in a small way tells of the prosperous business it has attained. The plant is well arranged and ideal in many respects. It was a great pleasure for the ceramists to spend an hour in such an orderly and businesslike plant.

With a threatening rain cloud hovering over us, we hurried for a car and returned to the Buchtel for a good night's rest. Early the next morning a crowd of unlucky thirteen rode over to Barberton on a trolley car, where the Diamond Match Company's plant was our objective point. Here Chief Gates met his Waterloo, for the plant was not in operation, and we had to postpone the pleasure of learning how such a useful and important article as a match is made. From the Diamond Match Company's office we walked a short distance to the American Sewer Pipe Company's plant.

American Sewer Pipe Plant, Barberton, Ohio.

Here we were received by Mr. J. M. McClave, the district superintendent of six of the company's many large plants, and M. Caine, the local superintendent. These gentlemen acted as our hosts, and guided us over the immense factory. The whole of the morning was spent here, in and about the machinery and press room, the drying floors, kilns, stock yard, etc. We first visited the large engine room, where an 800 horse power Putnam Automatic Duplex engine and a battery of five 250 horse power Sterling boilers were furnishing the power for the plant. Gas is used here in the summer time, while coal is used in the winter. We next visited the clay shed and watched with interest the men unloading the large train of cars filled with shale and clay mixed from the company's bank, a short distance from the plant proper. Twelve full-sized cars of clay are used daily. The raw material was being ground in a number of large dry pans before being screened and conveyed to the several wet pans.

The delegation then walked to the second floor, where nine presses were in operation. We watched the large press on which large pipes were being made. This press consists of a large steam cylinder, with a piston operating in a small cylinder known as the round drum, into which the clay is

introduced and forced through the die at the lower end a well-shaped sewer pipe. Much time was spent here watching the workmen handling the large ware. Four men were kept extremely busy. One, the lever man, operating the press, pulled the lever which set the machinery in operation that lifts the stool below and raises it to the correct position in the press. The hydraulic press keeps the stool fast, and the socket of the pipe is made. The stool then slowly lowers with the pipe resting firmly upon it. When the tube of clay or pipe is lowered to the proper point, the top is cut automatically inside the press. Two men then lift the pipe from the press to the floor. A pallet is placed on the top and a turn-cage swung over and fitted close to the pipe. The pipe is then lifted and quickly inverted on the cage and placed on the opposite side, where a two-pronged truck is pushed under the lower pallet or board, and both board and pipe are thus picked up and carried to one of the drying floors.

There are several immense drying floors heated with steam pipes, the largest floor being 750 feet long and 150 feet wide. The ware is burned in fifty-six kilns, which are being constantly used. The kilns are fired with coal. Twenty-five cars of pipe are shipped daily.

At noon we boarded a trolley and returned to Akron, where, after a hearty dinner, the ceramists repaired to a corner of the main lobby, where each in turn said good-bye and hurried for his train, to think over the many pleasant experiences of this twelfth annual midsummer meeting.

Those in attendance were as follows: W. D. Gates, Chicago, Ill.; N. H. Gates, J. M. Munshaw and D. F. Alberry, Terra Cotta, Ill.; B. E. Humphreys, Cleveland, Ohio; G. H. Brown, A. V. Bleininger and R. H. Hice, Pittsburg, Pa.; F. Cermack, Schenectady, N. Y.; L. R. Reifsnider and John J. Starr, Akron, Ohio; F. H. Riddle, Barberton, Ohio; C. W. Raymond, Jr., and I. M. Justice, Dayton, Ohio; E. T. Montgomery, Columbus, Ohio; W. B. Louthan, W. Smith and M. K. Zimmerman, East Liverpool, Ohio; K. Langenbeck, Boston, Mass.; Prof. C. W. Parmelee, New Brunswick, N. J.; Louis Ahlman, Cleveland, Ohio; L. L. LaShell, Warren, Ohio, and J. E. Randall, Indianapolis, Ind.

THE TRADE PAPER AS A GOLD MINE.

In an address delivered by R. R. Shuman before the Associated Advertising Clubs at Omaha, recently, on the subject of "The Place and Value of the Trade Paper," the trade paper was likened unto an only partially developed gold mine for the advertiser, which has much richer possibilities in it than have ever yet been developed, notwithstanding it has been the greatest power in the world in carrying information of new things in developing trade.

The estimate is made that an eighth of all the money spent for advertising purposes is spent with the trade papers, and it has done more than all other sources of advertising to develop trade, but it has not done anything like what may be accomplished by more thorough and widespread cultivation of the trade paper field. This is where it is likened unto a gold mine that has been crudely and indifferently worked, that can be made to yield much greater returns by making larger expenditures and going at it in a bigger manner and in a more thorough and scientific way, so as to get practically all the good that it is possible to get from it.

The point to the argument is that quite frequently, instead of carrying just a small business card, the advertisers should take large space, and cultivate it by using live, wide-awake and skillfully written copy, such as is prepared by some of the experts for the big literary papers.

He recognizes the trade paper as being not only the greatest power in the land for handling advertising relating to its special trade or industry, but advises and prophesies a new era, in which the general advertiser seeking the buying public will seek and find them through the trade papers with better returns for his money than through the dailies and literary papers. It is acknowledged that the trade paper is the field and practically the only field for the man having products relating specifically to the trade or industry represented to advertise in, and in addition to this it furnishes an inviting field for and is entitled to a great share of the business of the general advertiser.

Written for the CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



BUSINESS in the building trades and with the brick dealers in Cleveland has been exceedingly good since August 1. During August all records in the building industry for that month were broken, the total number of permits aggregating in value \$1,506,682, as against \$1,092,130 for the same month last year. There were 768 permits issued for August, as against 552 for the same month in 1909. The total value of the building permits issued for the first eight months of the present year was \$9,023,177. On September 4 the record to date was about \$450,000 ahead of the same period for last year.

As a result of this large volume of building the brick dealers and manufacturers are as busy as can be. Most of the jobs are for moderate sized and small buildings, few very large structures being proceeded with at present. This distributes the business pretty evenly. Despite the fact that the dull season is approaching, there seems to be plenty of business to keep things moving well until the snow flies.

One of the largest contracts to be awarded during the past month was for the Cleveland Athletic Club. This contract, aggregating about \$150,000, goes to the W. B. McAllister Company. The terra cotta work, worth about \$50,000, was captured by the Queisser-Bliss Company, representing the Northwestern Terra Cotta Company. The Queisser-Bliss Company will also furnish about 100,000 gray brick made by the Pearl Clay Brick Company, of Bradford, Pa. These will be used in the rear exterior walls. The new club building, which is to be seven stories on top of a building already five stories high and not yet ready for occupancy, was designed by J. Milton Dyer, of this city. The upper seven stories will be devoted solely to club purposes. The swimming tank, the largest in the State, will be on the twelfth floor. There will be an elaborate roof garden and a number of other novel features about the new structure.

During the past month there has been unusual activity in starting new school buildings. Four or five permits have been taken out by School Architect F. C. Barnum. The Cleveland Builders' Supply Company will supply 130,000 shale and pressed brick for use in the new Hodge school. Half will be Sparta glazed brick and half shale brick in chocolate shades. The same company will also furnish about 160,000 brick for an addition to the Glenville high school, half Sparta glazed and the others in neutral colors in shale.

Sparta glazed brick will also be furnished by the Cleveland Builders' Supply Company for the interior of an addition to the Technical high school. Exterior brick, 30,000 Bessemer shale, will be supplied by Robert L. Beck. The same concern will supply a large order of Harbison-Walker brick for an addition to the plant of the Bell Telephone Company on Champlain avenue, costing in the neighborhood of \$60,000.

Another good contract pulled down by the Cleveland Builders' Supply Company was an order for 250,000 Bokhara brick, Norman size, in mixed colors, for the new temple of the Anshe Chesed congregation at Euclid avenue and East Eighty-second street. This is a distinct triumph for the use of brick, for originally the church was planned to be built of stone. This was found so expensive that it was changed to brick, especially when it was shown that just as artistic an effect could be secured. The building, costing about a quarter of a million, is well under way.

The six-story addition to the Plain Dealer building, completing one of the finest newspaper offices in America, is now well under way. The first story is of pink granite, with terra cotta above to match. This terra cotta is being supplied by the Northwestern Terra Cotta Company through their Cleveland agents, the Queisser-Bliss Company.

A new fourteen-room building for the Fairport, Ohio, Board of Education is being built under the direction of Franz C. Warner, of Cleveland, who has awarded a contract for 120,000 Wadsworth shale brick to the Cleveland Builders' Supply Company. The new structure will be under roof this fall.

One of the biggest brick contracts let this year will be let

some time during the present month, when W. S. Lougee, architect for the new million-dollar grocery warehouse for the William Edwards Company, will award a contract for 3,000,000 shale brick. The walls of the structure are to be of shale brick throughout, no common brick being employed. About 300,000 face brick will also be utilized in the structure.

Three jobs which are expected to afford considerable business for the brick companies are now in course of planning. They are the new eight-story Y. M. C. A. building, costing \$400,000, and two branch Y. M. C. A. buildings, costing each about \$50,000. The big one is being planned by Hubbell & Benes, and will be the largest of its type in America. Architect Abram Garfield, son of ex-President Garfield, is planning a \$50,000 Y. M. C. A. building for Collinwood, and Albert S. Skeel is drawing plans for another building of the same character on the West Side.

The Chandler & Price Company will erect a huge addition to its plant in the East End. It is the largest manufacturer of printing presses in the world. The building will be four stories high, and will be a combination power plant and foundry. It will be of brick and concrete and fireproof throughout. Plans were prepared by Herbert McGeorge, engineer, and the contract awarded to the W. B. McAllister Company.

The Lawrence Clay, Pottery and Products Company, of North Lawrence, Ohio, has been incorporated by John P. Jones and others.

W. A. Fay, formerly manager of the Masons' Supply Company before it was absorbed by the Cleveland Builders' Supply Company, and subsequently manager of the Lake Erie Supply Company, has gone into business for himself, having opened up offices in the Scofield building. John Leonard, formerly in charge of the brick department of the Lake Erie Company, has joined Mr. Fay in his new venture, and will look after the brick interests of the new firm. Joseph Rowe has become manager of the Lake Erie Supply Company.

John F. McKay, formerly a salesman for the Cleveland Hydraulic Press Brick Company, but who left to engage in business, recently returned to the Hydraulic Company in the capacity of outside salesman. During the past month Mr. McKay was promoted to the position of city salesman, and is now looking after that branch of the company's business.

Bert Graham, for several years in charge of the brick department of the Cleveland Builders' Supply Company, has accepted a position as sales manager for the Ohio Clay Company, a concern with which he was formerly connected in a similar capacity. He will be succeeded as manager of the brick department at the Cleveland Builders' Supply Company by Robert C. Mitchell, who until a few weeks ago was president of the Contractors' Supply Company, which was absorbed by the larger concern.

BUCKEYE.

COMPARING ADVERTISING MEDIUMS.

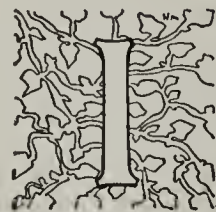
"If I were an agency," said R. R. Shuman, in his recent talk before the Advertisers' Club, "and were given \$60,000 to spend for an automobile campaign, and were looking strictly to my own profits, I would a great deal rather spend \$6,000 each in ten standard magazines, where one piece of copy could be written, illustrated, set up and ten electros made and forwarded at one time, than to bother to hunt up sixty trade and technical papers of fifteen different sizes and shapes and dates of issue. Yet, if I were looking to the greatest benefit for my client, and made a study of the average buying power of the circulation reached, I would have to pass up the popular mediums that reach the eighteen and one-half million families who cannot buy an auto, and put my client's campaign where it will reach the half or three-quarters of a million employers and captains of industry who have the money to buy whatever their wives and daughters tell them to buy, and would put before this logical audience for such a luxury a logical, businesslike presentation of the claims that could honestly be made for my client's car.

"Ten thousand subscribers to any one of the leading iron, dry goods, machinery, lumber, railroad, drug, confectionery or other similar high-class trade papers will include more heads of families who are able to buy a touring car than two million circulation in a selected list of nickel weeklies and ten-cent magazines."

Written for THE CLAYWORKER.

THE TWIN CITIES.

How They Entertain Conventions—Municipal Officers Enjoy a Week of "Shop Talk" and Side Trips.



IT'S GREAT to be twins! The joys of life are doubled and the sorrows are halved." So says a philosophic friend in whose judgment we have great faith. The twin cities of the Northwest have recently exemplified the first part of the proposition at least, for they have united to make the throngs who have recently passed within their gates twice glad. At any rate, so it was to those who attended the fourteenth annual convention of the League of American Municipalities, held the last week in August.

Notwithstanding the lavish entertainment extended first by St. Paul and then by Minneapolis—and they always vie with one another in the entertainment of visitors—the convention transacted a great deal of important business that will prove of much benefit to the cities and towns of the nation, especially those which were represented by their mayors and en-



Exhibit of the N. P. B. M. A. at St. Paul.

gineers. Many instructive papers were read dealing with the various important phases of city government, all of which will be printed and distributed free to the members. Non-members can obtain the reports by addressing the secretary, John McVicar, Des Moines, Iowa.

The one particular paper of special interest to readers of THE CLAY-WORKER was that on "Brick Pavements—Importance of Proper Construction," by Will P. Blair, Indianapolis, secretary of the National Paving Brick Manufacturers' Association.

Following the reading of his paper, Mr. Blair was quizzed for nearly two hours. Every member seemingly had some question to ask about the various details of construction, the most approved methods of testing brick, etc., etc. It was quite evident that many of the members who at first were skeptical were finally convinced by Mr. Blair's arguments and claims that properly constructed brick pavements are the best, most durable, most sanitary and most economical of all modern pavements. As a result it is a safe prophecy that the delegates will, on their return, insist on better and more thorough work, and that is all that is necessary to make brick pavements wholly satisfactory in every way for any street or road, whether the traffic be light or heavy.

Mr. Blair made an exhibit for the N. P. B. M. A. that was one of the features of the convention. It consisted of a booth

Snap Shots of Twin City Brick Company's Plant.



Mr. Koch Looks with Satisfaction on a Kiln Under Fire.



The Rustic Bridge at the Foot of the Upper Clay Bank.



Firing Koch Semi-Continuous Kilns—They Are Twins.



Emptying a Kiln of Drain Tile, Twin City Plant.



Mr. Koch in Automobile Near Factory Office.



The Press Brick End of the Twin City Brick Co.'s Plant.

nically decorated, about which specimen brick from a dozen or more of the leading manufacturers were shown, each properly placarded. The Association's literature was shown and distributed to all comers. He had also on display a standard box for mixing cement filler, and after the final adjournment the same was presented to the city engineer of St. Paul, who promised that it would be used in future work.

Bids for the Next N. B. M. A. Convention.

The accompanying view gives an idea of the display. The convention in many ways resembled an N. B. M. A. meeting, especially the one held at Rochester, for the meetings were held in the great auditorium, which is owned by the city. The delegates were seated in a space surrounded by exhibits, an arrangement that proved admirable in every way. Kansas City, Mo., was represented by her noted mayor, D. A. Brown, who was honored with the presidency of the Association. He and other Kansas City delegates expressed a wish to entertain the N. B. M. A. the coming winter, and declared that every needed facility for a successful convention would be afforded, including the city's immense auditorium. Mr. R. A. Maddox, of Atlanta, captured the convention by an eloquent extemporaneous speech, telling of the beauties of his city, and urging the delegates to hold the next L. A. M. convention there. As a result Atlanta was chosen by unanimous vote.

Mr. Martin Behrman, mayor of New Orleans, was a con-

netonka. The return trip was made by trolley, and, according to one delegate, but one stop was made, and that was to allow a weak-lunged motorman to catch his breath. However that may be, the party was back at the St. Paul Hotel on schedule time, 11 p. m., and again "the band played on."

The CLAY-WORKER scribe took advantage of the opportunity afforded by the stop in Minneapolis to visit the office of the Hydraulic Press Brick Company, admire the splendid display of front brick, and chat with the genial sales manager, Mr. E. H. Cobb, who stated that they had no complaint to make as to their trade. Business was good and had been all season. Strange to say, their largest job this summer for face brick was for a concrete skyscraper. The building is perhaps the tallest concrete building yet erected, being some twenty stories. It is now nearing completion, and when finished will be to all appearances a fine brick structure. The skeleton only is of concrete, and is encased and protected by brick and tile.

The Twin City Brick Company's Plant and Products.

The convention headquarters was at the new St. Paul Hotel, which is a remarkable structure. It is the first large building to be constructed of Koch's hollow interlocking blocks, and its fine appearance justifies every claim of its inventor as to the



Mr. Siwart Smit in His Private Office, and a Corner of One of the Display Rooms of the Twin City Brick Co.

spicuous figure in the convention. In a lobby talk he stated to the writer that New Orleans now boasts of a splendid auditorium which the members of the N. B. M. A. would find admirably adapted to their needs, and urged the advantages of New Orleans as a convention city. Secretary John McVicar, of Des Moines, followed suit with an urgent request that Des Moines be considered in the same connection, and insisted that the Iowa capital would afford unexcelled facilities. She, too, has a municipal auditorium. It seems that the enterprising cities of the country are awake to the benefits of gatherings of representative manufacturers and professional men, and are providing permanent halls of large capacity in which meetings may be held, ware displayed and visitors entertained. 'Tis well.

Minneapolis Day.

Thursday was Minneapolis day, and those attending the convention, members and visitors, were taken in trolley cars to that city, which lies some twelve miles due west from its sister. The excursion was headed by a brass band. Stops were made en route at the Soldiers' Home and Minnehaha Falls, "and the band played on." The visitors were officially welcomed at Minneapolis by the city officials, and then started again on a day of sightseeing, interspersed with luncheons, dinner, and a delightful boat ride in the evening on Lake Min-

neapolis. The return trip was made by trolley, and, according to one delegate, but one stop was made, and that was to allow a weak-lunged motorman to catch his breath. However that may be, the party was back at the St. Paul Hotel on schedule time, 11 p. m., and again "the band played on."

superior excellence of these block, which came from the kilns of the Twin City Brick Company. Wishing to know more about these block, we called at the company's city office, where the inimitable J. Siwart Smit was found busily engaged with some visiting architects who had come to inspect the displays of front brick. The show rooms are Mr. Smit's special pride, and deserve high praise. Mr. Smit is an artist, and has wrought color schemes with brick and tile that delight the eye and satisfy the lover of the beautiful. A snap shot of Mr. Smit at his desk, and of one section of the display room, gives but a faint idea of the excellent and effective arrangement of the ware offered for sale.

In company with the senior member of the firm, Mr. Fritz Koch, a trip was made to the brick plant, which lies on the east bank of the Mississippi river, just opposite the city. It is a most interesting plant, but as it has been fully described in the pages of THE CLAY-WORKER, it will suffice here to say that it is being run to full capacity. The demand for drain tile in the Northwest has been very heavy the past season, so the stiff mud end of the plant has been devoted to that line almost exclusively for several months. Mr. Koch has rare inventive faculties, so, turn whichever way one will about the plant, original appliances of his own invention may be seen. These and his skill in ceramic chemistry have enabled the

company to produce brick and tile of unsurpassed quality, and it is little wonder that architects who want anything original naturally look to the Twin City Company for it.

A Novel Brick Elevator and Conveyor.

St. Paul has many important manufacturing interests. One of peculiar interest to our readers is that of the Mathews Gravity Carrier Company. This firm has perfected appliances for handling brick and tile automatically that are great labor savers, and hence are of interest of every clayworker. They recently installed a novel elevator and carrier at a new plant established at Stillwater, Minn., a neighboring town. Unfortunately, the plant was wrecked by fire a short time after it began operations. It had other novel features, chief of which was a tunnel kiln, in which oil was used as a fuel. Wishing to see this and the carrier, too, we, in company with Mr. F. E.

Written for THE CLAY-WORKER.

SOUTHERN BRICK AND BUILDING NEWS.

THE BUILDING TRADE at many of the Southern centers is calling for good quantities of September brick, and building is quite brisk in many of the smaller towns. THE CLAY-WORKER's correspondent recently made a trip from Memphis, Tenn., to Bristol, Tenn.-Va., and heard of many enterprises going forward or in embryo. The kilns are running at nearly all the live brickmaking concerns this fall, and many large building enterprises have taken form. In upper East Tennessee some of the brick industries reported quiet conditions, but in Middle and West Tennessee reports were reassuring. Good news comes from Alabama, Arkansas and north Mississippi and southwest Kentucky as to progress in



A Car and Part of Its Load After Leaving the Tunnel Kiln.



The Mathews Gravity Carrier and Elevator.



The Ruins of the Stillwater Plant.



Stock Pile of Stillwater Plant. Mississippi River in Background.

Moore, treasurer and manager of the Mathews Gravity Carrier Company, and Mr. C. W. Fouke, manager of the Texarkana Brick Co., of Texarkana, Ark., who had stopped off at St. Paul on his way home from a trip North for the purpose of investigating the gravity carrier, we journeyed to Stillwater and viewed the ruins of the plant. Prior to the fire the plant had been turning out drain tile. The plant lies several feet below the level of the railroad, and to deliver the brick from the kiln to the freight car a combination elevator and gravity carrier was designed. The elevator part was operated by an electric motor. We took a snap shot of the device, and, while it is a little dim, the reader will get from it a fairly good idea of its construction and operation. Similar devices designed to meet other conditions will be supplied by the Mathews Gravity Carrier Company on request, as the reader will see by referring to their ad on page 252 of this issue.

the consumption of brick. It seems to be the order now over artificial stone and everything else.

Contracts for the erection of five new school houses have been let at Chattanooga, Tenn., the last few days. All of these will be of brick. The awards to contractors were as follows: Patten Chapel, P. O. Rodgers & Son, \$5,637; East Side, A. W. Duncan, \$5,563; Tyner, A. W. Duncan, \$5,500; Retro, D. F. Brandon, \$5,696; Fairmont, O. J. Carson, \$5,740.

The charter of the Chickasaw Building Company at Memphis Tenn., which contemplates the erection of a twelve-story structure on Front street, has been granted. The incorporators are J. N. Falls, Ray Dunscomb, C. H. Raine, Joseph Newberger and J. W. Falls.

Brick will be used in the construction of the new police station at Memphis. On this structure the city will expend \$260,000. The building will be three stories high and cover

an area of 16,500 feet. The plans have been drawn by Architects Shaw & Pfeil, Tennessee Trust Building, Memphis.

Munk & Ritchey, contractors, of Pine Bluff, Ark., have been awarded the contract for the Agricultural School building at Jonesboro, Ark. The contract price was \$30,000.

Costen, Moore & Co., of McKenzie, Tenn., are furnishing the brick and doing the contracting on a three-story hardware store for Wrinkle, Moore & Co. at McKenzie, Tenn., and also for a two-story bank building adjacent for the Citizens' State Bank of McKenzie.

A healthy increase was shown in the amount of building done in Little Rock, Ark., last month, according to figures issued by Chief Clerk Lynn Shelton, of the Department of Public Works. All told, 215 permits were issued, to the aggregate value of \$107,120.

Brading-Marshall Lumber Company, at Johnson City, Tenn., are handling brick in connection with their trade, but report the situation very quiet in upper East Tennessee, as construction work is lax. Their brick department is called the Johnson City Brick Company.

The Chattanooga Sewer Pipe Company finds trade picking up with more activity in the iron industries of the South.

The building committee of the board of trustees of the Mississippi College has awarded the contract to I. C. Garber, of Jackson, Miss., for the new dormitory to be erected soon on the campus.

The Alex. A. Scott Brick Company, at Knoxville, was among the firms visited. This firm reports a quiet situation on brick at Knoxville. They have furnished the supplies recently for a couple of schools at Maryville, Tenn.

J. F. Scott & Sons, South Knoxville Brick Company, Cooley & Woods, Davis & Son, Knoxville Brick Company and the Lonsdale Face Brick Company, the last making pressed brick, are all having a quiet season. In fact, very little has been going on this summer in that immediate territory.

James Alexander & Co., of Memphis, have been awarded the contract for building the West Tennessee Normal School, to be located near that city. The contract price is \$293,332. The Middle Tennessee Normal School, to be built at Murfreesboro, Tenn., will cost \$137,885, and the contract was awarded to George N. Moore & Sons, of Nashville.

The Business Men's Club of Memphis is making a specific plea for the use of home-made brick in the Normal School to be built at Memphis.

Winters & Dove, civil engineers, of Fort Smith, Ark., are looking after the plans for a 50,000-acre district to be drained near Helena, Ark. The officers of the drainage district are as follows: Lee Pendergrass, president; Welford White, secretary, and T. W. Kee, secretary, of Helena.

The Tift Silica Brick and Stone Company has been recently incorporated at Albany, Ga., with \$50,000 capital stock. Officers have been elected as follows: H. H. Tift, president; J. M. Tift, vice-president. The company will manufacture sand-lime brick, and will have a daily capacity of 20,000 sand-lime brick.

DIXIE.

OHIO BRICK MANUFACTURERS WANT LOWER EXPRESS RATE.

Asserting that pressed sample bricks are classed by express companies with millinery and gold watches, the Ohio Face Brick Manufacturers' Association has filed a complaint against express companies in various parts of the country with the Interstate Commerce Commission.

Officers of the association are: J. M. Adams, Columbus, president; L. G. Kilbourne, Columbus, treasurer; R. Q. Queisser, Cleveland, secretary, and H. H. Henry, Cleveland, attorney. Mr. Henry filed the complaint at Washington Thursday.

After you figure up the amount of your kiln waste during the past season, you may then be able to spend a little time profitably preparing ways and means to reduce it next year.



Danish Government Clay Laboratory.—Professor Steenberg has been instructed to test the burning in continuous kilns, and has obtained a donation of 2,000 kronen (\$1.11) to carry on the investigation. The Danish brickmakers' association has brought about these regulations, and has requested the government to give permission to use the clay laboratory for this purpose.—*Lerindustrien* No. 11, 1910.

Figuring the Value of a Clay Bank.—In many cases the clay is taken from a bank and paid for by royalty, and according to the brick made per thousand. When the brickmaker will buy the clay bank, this same royalty basis cannot be used to give the exact value of the bank. According to *Ziegler Zeitung*, the following formula to figure the value of the clay bank should be used:

$$K = R \frac{100 \left[1 + \frac{a}{100} \right]^n - 1}{a \left[1 + \frac{a}{100} \right]^n}$$

K represents the value of the bank, R is the annual rental, a is the interest, and n is the number of years that the rental will run or that the bank can be used.

If the annual rental is \$3,000 and the interest 10 per cent., and the bank has enough clay for 100 years, the figures arrived at with the use of the formula will be:

$$K = 3000 \frac{100 \left[1 + \frac{10}{100} \right]^{100} - 1}{10 \left[1 + \frac{10}{100} \right]^{100}} = \$30,000.00$$

—*Tonwaarenfabrikant* No. 11, 1910.

The Pottery Industry in China.—In the province of Chaochowfu in China there are a very large number of potteries, manufacturing faience and porcelain. Ordinary pottery is mostly made in the district of Fungchi, while in the districts of Changlok and Kopi the pottery is of a far better quality. The principal material used is a china clay or kaolin which is mined from a large mountain situated one mile from Chaochowfu. The pottery, which is made in a very primitive way, is dried in the sun and burnt in a kiln for twenty-four hours. The kiln is very low and partly under ground. It is about from 24 to 30 feet long and 5 to 6 feet wide, and fired with pine wood. Ordinary pottery is only decorated with colored glaze, while the better grade and the porcelain is painted with various designs. The decorated pottery is burnt only eight hours.—*Moniteur de la Ceramique* No. 14, 1910.

Drying of Fire Clay Blocks.—The drying of fire clay blocks is one of the hardest problems in the clayworking industry. Special attention should be paid to all departments, and the clay preparing is the first. The clay should be tempered as stiff as possible, so that it will take the least quantity of water. When the clay contains a small quantity of water it will take less time to dry, and consequently the danger of warping is less than when the clay is soft and contains a large amount of water. The pieces should be left standing over night without cover, as the edges will dry faster than the inside of the pieces.

The blocks should be dried in the first two or three days as slow as possible until they are stiff enough to handle. If the floor where the blocks are made is directly over a dryer or hot place the blocks will always crack more or less, and a moving of this department to a cooler place will materially lessen the danger of warped and cracked blocks. Porous fire clay blocks made with sawdust will warp quicker than the ones made with coal slack. If the pieces are warped when they are dry, they will seldom burn straight in the kiln.—Tonind. Z. No. 69, 1910.

The Present Brick Situation in Germany.—Labor troubles in Germany have reached such a height that nearly all business is more or less affected. Strikes have not been so bad in years. All building trades are striking, and the consequence is that the brickmakers have partly or entirely shut down, and only in a few cases are operating on a small scale. The general building trades strike went into effect April 15, and so far no settlement has been made.—Deut. Topf & Z. Z. No. 45, 1910.

The Future of the Brick Industry.—The past and present of the brick industry is a point in which the brickmakers are not very much interested. The future is the main thing which is figured on. What can be done in order to combine different brick yards and to maintain uniform prices is best shown with the following table:

Company.	Capacity.	Sales.	Selling price per 1000.	Cost of production per 1000.	Cartage per 1000.	Profit per 1000.	Total profits.	Total expenses.	Net profits.
			Mk*	Mk*	Mk*	Mk*	Mark*	Mark*	Mark*
1 A	10 million	10 million	23	15	3	5	50,000	10,000	40,000
B	10 million	10 million	23	15	6	2	20,000	10,000	10,000
2 A	10 million	5 million	21	15	3	3	25,000	10,000	5,000
B	10 million	5 million	21	15	6	0	.....	10,000	+10,000
3 A	10 million	5 million	23	15	3	5	25,000	10,000	15,000
B	10 million	5 million	23	15	6	2	10,000	10,000	none
4 A	10 million	10 million	23	15	3	5	50,000	10,000	20,000
B	10 million	.....	..	..	..	..	.....	10,000	10,000
5 A and B	10 million	10 million	23	15	3	5	50,000	10,000	40,000

* Mark—equivalent to 23¼ cents U. S. money. || Loss.

In this table we have taken as examples two brick yards which are located close to a large city. Each yard has the same machinery and the same capacity, and the operating cost is nearly alike. The one brick yard is called A and the other yard is called B. The capacity of each yard is 10,000,000 brick yearly. The only difference between the two yards is that yard A has only a haul of a mile and a half to town, while yard B is situated 7½ miles from town. It costs yard B 3 marks per 1,000 more for cartage than yard A. By a careful study of the table the different instances and combinations can be followed. In the first instance yard A made a net profit of 40,000 marks, while yard B only made 10,000 marks; in the second case yard A made only 5,000 marks, while yard B lost 10,000 marks. In this case the price has been lower than the year before. Now both the yards have an understanding and have raised the price to 23 marks again, and, while the sales are the same as the year before, A is able to make 15,000 marks profit, while B plays even, as shown in the third instance. The owner of yard B at the end of the year is not satisfied with the arrangement made the year before, and he tells yard A that the cartage he pays means profit to outsiders, and as yard A has a yearly capacity equal to the combined sales of the yards, yard B made yard A the following proposition: that he will shut down his yard for the year, and that yard A only will sell and make all the brick; however, that

yard A will pay him 4 marks per 1,000 of the half sales. The result is the fourth example. The net profits increased to 30,000 marks, and A gets 20,000 marks, while B, by shutting down his plant, gets 10,000 marks. Since A and B are now very friendly, they talk the matter over and decide to form a partnership. The yard A is used exclusively for the making of brick, while the yard B is changed to a higher class products, which will better stand the larger amount of the cartage, and the result of the combination is given in example 5. The total net profit for the year's operation is 40,000 marks.—Deut. Topf & Z. Z. No. 50, 1910.

Clay Industry Exposition at Berlin.—The German Association of Clay, Lime and Cement Manufacturers opened in June its second international exposition in Berlin. The exposition was held in the regular exposition grounds, and the city of Berlin was glad to give permission to hold this exposition in this park.—Tonind. Z. No. 65, 1910.

Roman Brick.—There has been found recently in the city gravel pits of Heilbronn some bricks which were stamped with a ring and the inscription "Justum fecit" (made all right). According to Professor Seeger, of Breslau, the bricks were made between 500 and 700 years before Christ's birth. Evidently the stamp was put on by some foreman, and indicates that the bricks were inspected before being burnt.—Deut. Topf & Z. Z. No. 50, 1910.

Annual Meeting of German Pottery Trade Association.—The annual meeting of this society was held in Berlin on June 8 last. The president of the association, Dr. Heinecke, states that the society has been in operation twenty-five years. The principal features of the work done are to safeguard against accidents and the insuring of the employes. The society started with a membership of 737 potteries, with 46,551 employes, and at the present it has 1,404 potteries, with 86,571 employes.—Deut. Topf & Z. Z. No. 48, 1910.

New Swiss Brick Yard.—In Roggwill, in the district of Berne, a new brick yard has been built which has all of the latest mechanical appliances known to the brickmaking industry. The brick machinery is located on the ground floor, while the whole drying installation is found on top of the continuous kiln. The drying apparatus consists of a system of chain conveyors and carriers, and the bricks are handled very little by hand. The continuous kiln is of the latest design and has 16 chambers. The annual production is 5,500,000 brick.—Il Cimento No. 14, 1910.

Requirements of Berlin Brick.—The German Association of Clayware Manufacturers has published a letter in which the Royal Testing Station states that it tested in 1909 ninety-eight different brick at the request of the Berlin Brick Manufacturers' Association. The average crushing strength of the tested brick was 3,156 pounds per square inch. Among this large quantity of brick tested there were only nine brick which did not reach a crushing strength of 2,100 pounds. Under the same test sand-lime brick crushed at 1,950 pounds per square inch. The highest test made was with clay brick, 6,795 pounds per square inch.—Deut. Topf & Z. Z. No. 44, 1910.

Coal Briquettes for Kiln Burning.—In several continuous kilns briquettes are used for burning in preference to coal. The briquettes usually have a longer flame than the coal, they burn slower, and flashing can be avoided. The ash is small, and on that account the briquettes burn more slowly and the ash will not be carried as far on the bricks as with coal. The heating qualities of briquettes as against coal are about 2 : 3, and when the price of briquettes is all right the difference in price between coal and briquettes is about 2 : 3 1-7 in favor of the last. A mixing of coal and briquettes will always give good results, and in some kilns the first row of brick is burnt with coal, while the balance of the kiln is burnt with briquettes.—Tonind. Z. No. 71, 1910.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Hats Off to Grandpa.

FRIEND GRANDPA:

We have just returned from a trip through California, where my wife and I visited our daughter, who, when she went away, went almost far enough to get her feet wet. I hope some Indiana parties will get a move on them so I will get some inquiries from there; then I can come and offer personal congratulations. However, my hat is off now to you, oh, grandpa!

Wheaton, Ill.

G. C. STOLL.

Business Good in Michigan.

Editor THE CLAY-WORKER:

Enclosed please find two dollars to renew our subscription, as we like THE CLAY-WORKER very well. Our business is very

ance that another heart string has been made to vibrate on account of the discovery of that precious clay known only to dear old grandpas.

Just think of it! July, the month made famous by the declaration of our national independence, at which time we profess publicly our loyalty to the greatest republic on earth, but inwardly and secretly reserve the right to humbly bow in adoration to the little king or queen which so mysteriously comes to rule over us with an iron hand. So yours is a queen, a real queen. Long may she reign over the destinies of the Randall family!

I send under the protection of our Uncle Samuel my most hearty congratulations, with the sincere hope that you may bear with becoming dignity the exalted position to which you have been unanimously elected. From a real grandpa, in both love and sympathy.

A. L. CONVERSE.

Springfield, Ill., August 20, 1910.

Progressive Missouri Brick Manufacturers.

Editor THE CLAY-WORKER:

Enclosed find subscription to THE CLAY-WORKER for another year. Also send you a couple of pictures showing our plant and kilns; including the three new kilns built last summer to enable us to meet the constantly growing demand for our brick. Each of these kilns has a capacity of 85,000 brick, and increases our capacity to several million brick a year, including dry pressed, vitrified and sidewalk brick. In addition to



General View G. M. Boyd & Company's Plant, Knobnoster, Mo., and a Glimpse of the Kilns.

good. We are making 60,000 brick a day, and are about two weeks behind with our orders, but are gaining some. Have had a very good summer so far in business, but we had a very great loss to our firm in May. Mr. Bird, our secretary and treasurer, died, and we miss him very much, as he was a great man—nothing too large and nothing too small for him with always a smile for everyone. We are running two machines, one Raymond and one Monarch. We dry the Raymond brick by steam and the Monarch brick by sun. Burn with coal in from nine to thirteen days, according to dryness of the brick set in the kiln. Hoping all is well, we remain,

Lansing, Mich.

CLIPPET-SPAULDING COMPANY.

Congratulations from a Grand Grandpa.

DEAR OLD GRANDPA RANDALL—How I have waited these many years to admit you into full fellowship of our honored fraternity! The month of July seems to be the chosen or accidental time (it don't matter which) in which you were fully initiated with proper ceremonies.

How oft have I grasped you by the hand and received a responsive grip which made me tingle from head to heart with that ecstatic emotion which only two souls can understand who have had similar experiences in the manipulation of common clay, but now, after long delay, we have the assur-

our brick business we are miners and shippers of coal and clay. Our plant being located on the Missouri Pacific railroad gives us splendid shipping facilities, so that we are able to supply neighboring towns as well as take care of our local trade.

G. M. BOYD & CO.

Knobnoster, Mo.

Want Prices on New Machinery.

Editor THE CLAY-WORKER:

The Petersburg Fire Brick and Tile Company will put in an outfit of paving brick machinery this fall, including pug mills, brick machine, auto cutters and repress, and will be glad to receive prices on same.

Coal Grove, Ohio.

JOHN PETERS, Secretary.

Information Relative to Brick Pavements Wanted in Egypt.

Editor THE CLAY-WORKER:

I duly received your favor of June 13, for which I am very grateful, as the booklets you enclosed have enabled me, I hope, to book a trial order for 50,000 pavers. I have written to Mr. Blair for more booklets, as those you kindly sent me have been eagerly snapped up by those interested in the matter; at the same time, although I have not dared to ask for more than single copies of each booklet, it would be of

great advantage for me to receive more for distribution, as profound ignorance appears to prevail here on the subject of brick pavements for carriageways, which your booklets would do much to dispel.

I enclose check for \$3, being \$2.65 for subscription to THE CLAY-WORKER and the balance for extra postage on such pamphlets on brick pavements as you would like to send me.

Yours faithfully,

Cairo, Egypt.

F. C. BEVAN.

Building Brick Association Makes a New Departure.

Editor THE CLAY-WORKER:

We send you, under separate cover, electrotype of the first advertising to the public by the Building Brick Association of America.

This advertisement will appear in the Saturday Evening Post of September 24 and Everybody's Magazine for the month of October. We propose to continue this each month in each of the above publications until next February, with a change of picture each month.

Careful records will be kept from the replies received from this advertising, and weekly bulletins will be issued to mem-

brickmaking fraternity will make a general rally at this time and join this movement, this advertising can be quadrupled in size, effect and quantity. Who can possibly predict the enormous benefits which would thus come to the brickmaking business?

However, let us be encouraged with even our present outlook. Two years ago we could not raise over \$500 for the cause of publicity. Last year, despite strenuous efforts, we raised less than \$4,500. This year we have received up to date actual cash amounting to about \$10,000, and we have about \$4,000 coming in shortly from fees which are now just due. In addition to this, our literature is selling rapidly. There is no question that we shall have over \$15,000 this year. We shall send out one more stirring call to the brickmakers, and if they rally to this call we can easily raise a total of \$20,000.

Does this record not show progress indeed?

Yours very truly,

THE BUILDING BRICK ASSOCIATION OF AMERICA,

PARKER FISKE, Secretary.

New York City, September 12, 1910.

The Chicago Situation.

Editor THE CLAY-WORKER:

The outlook for a good fall in building lines continues to improve almost with every week now, and, instead of a falling off in building activity, the records of the building commissioner's office now show an increase, week for week, compared with the records for last year.

New things and big things appear on the boards day after day. The McCormick estate is to erect another tall and ornamental office building in Michigan avenue, much like the McCormick Building, which was completed only a few months ago. The site for the new structure adjoins that of the completed building, and runs from 189 to 192 Michigan boulevard. Construction will begin May 1 of next year, plans being already under way by Holabird & Roche, architects. The new building, like its prototype, will be twenty-one stories in height.

There is much industrial building to the fore in the plans of architects, and builders too, in addition to the sky-scrapers running into the millions, and after all it is the big run of these more substantial if smaller orders that make the world look bright to the material dealer. The competition for the big and ornamental jobs often is so keen that when all is said and done the advertising is about the best the successful bidders can hope to get out of the job.

Dwight Brothers Paper Company are to have erected for their occupancy a ten-story fireproof building, chiefly in brick, to cost about a quarter of a million. Construction is to be commenced within the next month or so. The building will stand at Clark and Harrison streets, and is to be put up for the manufacturing firm by A. J. Franks, the owner.

The Spiegel-May-Stern Company are putting up a practical administration building in brick and stone on West Thirty-fifth street, between Morgan and Mosspratt streets. It will be only four stories in height, but will cover much ground, having a frontage of 180 feet in Thirty-fifth street and a depth of 125 feet. It will be used for the executive and mail order end of the business, and the basement will be devoted to restaurant and rest rooms for the hundreds of men and women who will be employed there.

An important building move on the part of Marshall Field & Co. in the heart of the shopping district is anticipated as the result of a purchase from the heirs of John B. Drake by the Field estate of the property at the southeast corner of Wabash avenue and Washington street, now occupied by Tobey's furniture store. On the surface the purchase is reported to have been made for investment only, but the Field estate now owns three of the four corners at this particular street intersection.

This same firm is about to erect a twelve-story wholesale

Learn About Brick



*Every one admires a brick house.
Few realize its low cost and economy.*

Brick is the most beautiful, most reliable, really the cheapest building material in the world. The cost of wood has risen until a wood house costs more to build and maintain than a brick house.

Learn the Facts. Send to-day for our **Free Book**, "A Revolution in Building Materials."



TRADE MARK

Two Books of New House Designs from leading architects' offices, sent on receipt of price.

"A House of Brick for \$10,000"
2nd edition, 41 designs, 25c.

"A House of Brick of Moderate Cost"
(\$3,000 to \$7,000). 71 designs, 50c.

When writing state character of work you have in mind.

The Building Brick Association of America
1617 Flatiron Building, New York

bers of the Association only, giving the names and addresses of all inquirers. Brickmakers who are not members will never hear directly from this advertising.

This advertising really marks an epoch in the history of brickmaking. Never before, so far as we are aware, have the brickmakers gotten together and done any joint advertising to promote the sale of their wares. The occasion seems to us to be worthy of mention in your paper, as we believe it will be of intense interest to every brickmaker in the land, whether he is a member of our Association or not.

This advertising, continued during the five months above stated, will appear in ten million copies of these publications.

It has been determined by accurate investigation that each copy of the average monthly magazine is read by five persons. It is undoubtedly true that each copy of the Saturday Evening Post is read by at least two persons. On this basis this advertising has a possible maximum number of readers of 27,500,000

The advertisement is small and modest, and will appear possibly in only two publications, as above stated. If the

warehouse at Fifth avenue and Polk street. It will be of fire-proof construction, and is designed by D. H. Burnham & Co.

An unusually fine apartment building, to cost not less than \$400,000, is being projected by Benjamin H. Marshall, of Marshall & Fox, architects, who has purchased the site in Lake Shore drive, 400 feet west of Lincoln Park boulevard.

SCRIP.

CALIFORNIA CLAY DEVELOPMENTS—NEW PORCELAIN WARE METHODS.



WITH THE VERITABLE Arabian Nights' verisimilitude, the city of Richmond, Cal., has developed in a night from a mere straggling village to a large, throbbing industrial center. Irrespective of the establishment of the huge Pullman car shops there, Richmond provides positive proof of a striking impetus in the clay industry in the Golden State. The Los Angeles Brick Company, with a plant on the water front south of the Santa Fe railway track, has now decided to enlarge its scope of business and prepare for shipping the product of the large plant both by water and rail. The company has one of the largest and most modern equipped brick manufacturing plants on the Pacific coast in northern California, and it has several large plants in the neighborhood of Los Angeles. Thus far the Richmond plant has confined its trade to San Francisco, the brick being shipped there by means of water transportation, but now it has decided on a new plan of action. Hereafter it will enter into competition with the concerns in the interior of the State. With this end in view, ground has been purchased of the John Nicholl Land Company near the Santa Fe right-of-way on Richmond avenue, south of the Santa Fe railroad track, and work will begin on the construction of a large warehouse for storage and shipment of brick.

A new enterprise of importance especially to the West is the Pacific Porcelain Ware Company. It is a company recently organized by Mr. M. Platts, with Messrs. E. F. Euphrat, H. L. Frank and N. W. Stern, who located their plant at Richmond on account of its fine transportation facilities, both for the reception of the raw materials and the shipment of their finished product. At Richmond they located ideally on the Southern Pacific tracks, and occupy a main building of four stories and basement, with numerous exteriors which have been added to meet the requirements of this business. The Pacific Porcelain Ware Company manufactures sanitary earthenware for plumbers' use only. It is the only manufacturer of this line west of the Mississippi river, and it is the first company in its line to use oil for its kiln work, and the only one doing so to-day. It is the only company in the United States to-day, it is said, that eliminates the potters' millers, absolutely receiving all their materials, such as various clays, feldspars, flints, etc., in the raw state and doing the preparatory work themselves which is done by potters' millers for every other porcelain plant in the United States. Their flint and feldspar come to them in the form of large rock, and it is placed in an immense three-story grinder and crushed, then into other grinders until reduced to the consistency of flour and sieved through sieves of 120 to 150 mesh, the fineness of which is certainly remarkable.

Their raw clays are placed in an immense trough, soaked with water, and by machinery constantly turned and the sand obliterated. This is done until the top forms a creamy substance, which is carried through troughs to and fro for over 800 feet, then emptying into a very large tank, allowed to settle, and later taken to rooms known as "form rooms" and placed in molds. After being allowed to dry thoroughly, about 400 to 500 pieces are placed in a kiln and heated to 2,400 degrees Fahr. After cooling the "biscuit" ware is dipped in a very large tank containing the potters' mixtures of various oxides, etc., and these half-finished products are again placed in kilns for the final burning and subjected to the same pre-

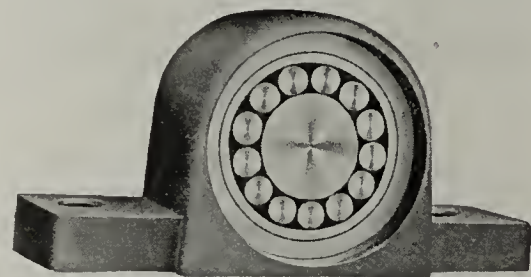
vious temperature. When removed they are the beautiful and absolutely perfect finished product, with the true bell sound that pronounces the high-class article of porcelain. Mr. Platts is no stranger to the clay industry. He is an experienced pottery manufacturer, formerly of Trenton, N. J., and Pittsburg, Pa. He spent a considerable time in California, and after much search discovered in the hills and mountains of California every ingredient needed in the manufacture of pottery and earthenware, except one single clay from England, which up to the present they are compelled to import in its raw state, but it may be firmly believed this quality of clay will be uncovered in California in due time.

The Pacific Porcelain Ware Company are employing at present about fifty men. The orders already taken will consume their entire product for a year, and as a consequence they are now building two additional kilns, which will more than triple their present output. The porcelain products are beautiful in appearance, absolutely vitreous and non-porous, and Mr. Platts' claim that they cannot be surpassed anywhere in the world is admitted by experts. Electricity is the sole motive power of the entire plant.

"LAMBETH."

A NEW ROLLER BEARING FOR BRICK BARROWS.

With their customary alertness to every new device that will be an improvement to their brick yard supply trade, which has now assumed enormous proportions, the Wellington Machine Company has come forward with a new roller bearing for brick barrows which promises to be a leader. In place of the old style, the roller pins in the hub of the wheel, they are



placed in the two end bearing blocks, which are case-hardened and wear-resisting. This produces both a longer-lived and easier running bearing which every brick manufacturer and wheeler will appreciate, and has evoked repeat orders wherever it has been used.

A MODERN BRICK CARRIER.

We have watched with considerable interest the rapid progress made by the Mathews Gravity Carrier Company in placing their gravity carrier devices in many of the largest brick manufactories in the country. The introduction of anything in the way of mechanical devices for which wonderful things are claimed naturally arouses more or less skepticism and doubt in the minds of those whose attention is called to them. The Mathews Company introduced their mechanical device for rapidly conveying brick from point to point some ten years ago, and, contrary to all precedent in such matters, proved to be a winner from the start. A gravity carrier offered so many advantages over the old method of wheeling brick in barrows by hand labor that it at once caught the interest of all who became familiar with its very practical features. It is quite needless to say that improvements have constantly been made and new devices perfected in conjunction with their carrier, and we feel like indorsing the statement of the manufacturers that it is now a perfect device for economically conveying brick, tiling, cement blocks, etc., between any two points in and around the plant. It is a great time saver in loading cars. See display announcement on page 252.

THE ST. LOUIS BRICK SITUATION.



USUAL AMOUNT of fall business is being done by the clay manufacturers. The brick plants, in particular, are manufacturing right along, and are sending out their products in fairly good volume. The demand is quite good for all kinds of brick, and there is every prospect that this demand will continue until the building season is over.

Building permits last month increased \$400,000 over the totals for July, the aggregate being \$2,316,169. In July the estimated cost of all buildings authorized by permits was \$1,976,350. The increased business was in the seven mercantile buildings, aggregating \$635,000, and a factory building at \$110,000. There were also 85 flats and 121 brick dwellings, costing in the aggregate \$769,800.

Compared with August, 1909, the showing was not so good, a spurt in big buildings for the month last year running up the total to \$2,952,959. The number of permits was 121 greater, showing a larger number of new small buildings last month.

Forty-two street contracts were awarded a few days ago, aggregating almost \$600,000. A great many of these contracts, in fact the majority of them, were for brick paving. The street work under contract now is so extensive there will probably be some delays in getting it completed. Street contractors claim they are unable to get sufficient labor or materials to push the work as they would like. Stone curbing in particular is hard to get now.

Walter H. Handley, former manager of the St. Louis Vitrified and Fire Brick Company, died at Seattle, Wash., a few days ago. He suffered a nervous breakdown and was known to have heart trouble. A couple of months ago he went West to recuperate. The body was brought to St. Louis for interment.

The Kloess Brick Company, of Belleville, Ill., recently sold its large manufacturing plant in West Belleville to the National Pressed Brick Company, which has an office in the Victoria Building in this city. The National Company owns many brick plants in St. Louis and Illinois. The company took charge of the Kloess plant at once, and will operate it on a larger scale. William and John Kloess will remain with the National Company. The consideration is said to have been \$42,000.

Major Roseborough, connected with the Christy Clay Company for thirty-one years, up to 1895, died a couple of weeks ago at his residence in this city, at the age of eighty-eight. He was born in Londonderry, Ireland, and came to this country at the age of twenty-two and settled in Philadelphia. After the Christys came to St. Louis and established the fire clay business, they sent Mr. Roseborough a sample of a rich find for an opinion. Mr. Roseborough furnished valuable information to the new company, and in recognition for his aid he was given a position with the firm. This was in the sixties, and Mr. Roseborough has resided at St. Louis ever since. He is survived by his widow and three daughters and two sons. Burial was in Philadelphia.

Fire damaged the stock shed of the Laclede-Christy Clay Products Company to the value of about \$500 a short time ago.

H. Miller, of the Laclede-Christy Clay Products Company, who has been in the South to look over work which his company has under construction in various parts of that section, has returned home. He says business has been quite good with them.

The contractors of Alton, Ill., were granted an injunction recently against the Alton Building Trades Council. The injunction is the outcome of a long and bitter war between the labor unions and the local builders. The contractors have refused to employ exclusively union laborers, and in consequence labor on several buildings under construction was stopped by a strike.

Anthony Ittner, president of the Anthony Ittner Brick Company, is fairly well pleased with business conditions.

George W. Jones, secretary of the Evens & Howard Fire Brick Company, says they are having their usual run of busi-

ness for this time of the year. From the number of inquiries that have recently come in, he looks for a good fall trade.

Walter Grath, of the Illinois Supply and Construction Company, reports conditions as quiet, but not more so than is usually the case at this season of the year. There are many inquiries coming in.

A SAINT.

STREET PAVING COMPARISON.

In the matter of cost, street paving varies, owing sometimes to quality of material, sometimes to location of the city or town doing the paving, sometimes to one cause and sometimes to another. Also, this variation in cost holds the same with brick paving as with asphalt and wood blocks, so it is hardly ever conclusive or fair to compare the cost of paving with one material in one city with the cost of paving with some other material in another city. However, there is before us now some official figures of comparative cost, all taken from one city in which the rate seemingly runs fairly low—a city which, so far as can be seen, is about as well favored for one material as for another.

Here are the figures of comparative cost which were given out officially by the Board of Public Works of Louisville for the municipal fiscal year ending with August 31, 1910:

	Average Cost Per Square Yard.	
	1908-09.	1910.
Asphalt, property pay.....	\$1.93	\$1.9156
Vitrified block, property pay.....	1.815	1.884
Granite block, property pay.....	3.09	.....
Sidewalks, granitoid, property pay.....	1.83	1.90
Sidewalks, brick, property pay.....	.995	.96
Asphalt, resurfacing, city pay.....	1.17	.955
Asphalt, reconstruction, new foundation, city pay	1.85	1.70
Vitrified block streets, city pay.....	1.615	1.602
Granite blocks, city pay.....	2.58	.....
Wood blocks, city pay.....	2.56	.....
Alleys, vitrified block, city pay.....	1.625	.....

There is more to these figures than the comparison of price alone. But let us take that matter first. It will be found by comparison that in each case the cost of vitrified brick paving was lower than the cost of asphalt paving. That is, lower even in first cost. This is a comparison, of course, that will be varied in different cities, because of the relative availability of brick and asphalt. Some may have the brick more convenient in a higher grade; some may have asphalt more convenient, or rather more accessible. Consequently, the figures will vary in different cities. It would probably be better—that is, the Louisville streets would probably be better—if they paid more for their brick paving and got a better job of it. But even the brick paving of Louisville is admittedly better than the asphalt paving, which brings us to the other matter contained in this report besides the comparative figures of cost. A whole lot of the work of the year was in the reconstruction of asphalt streets, resurfacing. In many instances, by the time half a dozen blocks of paving with asphalt were laid, it became necessary to go back and patch. Where this happened the contractor doing the work had to do the patching, but after a specified time it comes to be a matter of the city resurfacing, and this part of the business takes up about as much of the city's time and expense as the laying of entirely new streets. There is, of course, a certain amount of reconstruction on brick paved streets, probably more of it in Louisville than in some cities where a higher grade of paving brick prevails, but the amount of repairs on brick streets is purely nominal as compared to the cost of repairs on asphalt.

Another matter that should be noted is the comparative cost of wood block paving, because wood block is being agitated quite strongly now, and Louisville, like many other cities, is trying experiments with it. It has paved a number of blocks down town to get rid of the noise of granite, and the final result of this experiment will determine whether or not a great deal more of the paving will be done with the same material. It will be observed that the figures for this run practically the same as for granite blocks, the most expensive of all paving, so that in the matter of first cost the wood blocks are simply not in it with brick paving.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



THE TRADE in brick has fluctuated considerably during the past month, and prices have varied accordingly. In the main, however, quotations have ranged relatively high, and business has been done in small quantities rather than large. The situation has changed but little as compared with last reports, even though there have been fluctuations. The conditions which govern the market do not change materially, consequently the sale has been progressing in substantially the same fashion continuously. It may be said, however, that business has been done upon a somewhat broader basis so far as the better qualities of brick are concerned, though perhaps this will be questioned by some. Movement has been principally for immediate consumption, with no reference to any requirement which might come up in the future. It is pointed out by some experts that prices will continue at about the same range as now, since manufacturers are controlling their output more carefully than ever before, and business has felt this to some extent all through the season. The fact remains, too, that the most active building season has passed. It is now September, and operations have been well pushed along or are closed in. The requirements will naturally be less during the remainder of the season, though it will still need some brick to keep the builders going until snow comes.

Prices have shown little inclination to move upward in any important degree during the past week. Hudson river stock is selling up to \$6, with \$6.25 asked in some instances, though not in all. Holders are usually well enough satisfied to get \$6, and probably in more than one instance the price obtained is much less. However, around \$6 is the regular quotation, and in most instances this figure is adhered to with a good deal of pertinacity, regardless of what has been said. Just what the future may have in store it is impossible to say.

Sixty-nine cargoes were received the week of August 20, which, with three cargoes left over from the previous week, made seventy-two at the beginning of the week of the 27th. Receipts that week were seventy cargoes, but sales were heavy, leaving six over at the end of the last week in the month. The number received the first week in September was not reported, but whatever it was they were cleaned out, so the market was bare at the close of the first week. Receipts during the second week were about seventy-five cargoes, and all were sold out. Receipts during the month have probably been a little lighter than during the corresponding period in August, but they have still been moderately heavy. They have come from the Hudson river districts, the Hackensack and the Raritan rivers. The latter have sold somewhat better than either of the other varieties.

According to apparently reliable estimates, the total output in New York State will approximate 1,200,000,000 this year, compared with 1,475,000,000 last year, a reduction of 323,000,000. This estimate is based upon the stated plans of manufacturers to close their plants earlier than usual this year, thus reducing the output materially. Two causes have influenced their determination to close early. Low prices have prevailed all the latter portion of the season at least, and they have considered that the profits have been too little to warrant continuation as long as usual, while, on the other hand, they have been able to stock a considerable quantity even while shipping and in spite of the fact that they have been short of labor. These two factors have had much to do with the present conditions of the market, and have contributed not a little to the determination of the manufacturers to stop early and thus influence the market toward a higher range of values.

A startling story came from the Hudson river section some time during August, when it was declared that an attempt was to be made to break up the Hudson River Manufacturers'

Association on the ground that it had outlived its usefulness and was now controlling things with a high hand. So far, however, no steps have been taken in this direction, and it does not look now as though anything would be done right away. It is, of course, impossible to say at this writing what has been done, or what will be done in the near future, but according to one authority the movement has been dropped for the present, and may never again be taken up. It is reported to have resulted from a bit of spite, and so far as anything occurring to make it necessary, it is said that conditions, so far as the association is concerned, are just as they were and have been for a number of years. It is therefore almost certain that nothing has been or will be done in the near future. When the regular meeting comes in the winter, possibly there will be something done that will have a tendency to clear up the misunderstanding, provided there was any, and put the association in a right light before all its members.

Some strike talk was heard a week or so ago among the bricklayers of New York, but it exerted no influence upon the situation, and business kept right on just the same as before. In most instances the talk was more or less wild, and developed nothing new or unusual in the situation. It all passed away, and the situation will probably remain as it is during the remainder of the season at least, though no one can determine or predict, even, when some of these labor unions are going to make trouble, particularly in the Metropolitan district.

As a whole the majority of the dealers and others are of the opinion that the outlook for the coming season is reasonably good, and that business will probably continue in about the present volume for the remainder of the season at least. If the association should be disbanded it would afford the independents an opportunity to manufacture and sell as they chose, without any reference to an agreement, and this might change prices materially at different times; but as things are now the situation will scarcely change this season. The tendency will be upward rather than downward, if present indications count for anything.

BURTON.

THE YOUNGSTOWN WAY.

Nothing but the best is the good motto which seems to guide the Bessemer Limestone Company, of Youngstown, Ohio, in all its undertakings and business methods. That now famous company, which manufactures a high-grade paving brick, and whose plant has been the Mecca toward which many clayworkers have made their way during the past year, has mailed to us their fine pictorial booklet, but recently off the press. This is one of the finest pieces of advertising literature we have received this year. It contains excellent views of the many interesting points in and about their immense plants, with suitable descriptive matter and interesting information as to the method of manufacture and the testing of brick and block, and the proper construction of vitrified brick and block pavements. Fourteen street scenes comprise the last pages of the booklet. These streets, made of the Bessemer block, are located in Pennsylvania, New York, Ohio, Michigan and Virginia. This is only a small part of the territory covered by the Bessemer Limestone Company, whose product has gained the reputation of being in the front rank in vitrified brick and block.

SCHURZ OIL BURNERS BEST.

Oil as a fuel for burning clay ware is so economical and efficient that its use is advisable where it can be obtained at a price that is within reason. Some knowledge of the improved methods and appliances for its application to kilns or for boiler use is necessary, of course, but the chief necessity is a good, reliable burner. The Schurz burner, which is illustrated on page 248 of this issue, answers the description fully, the Illinois Supply and Construction Company state. They will gladly give full particulars to any reader of THE CLAY-WORKER who is interested and will write them on the subject.

**A FALSE SHIBBOLETH—MEN FIRST, BUSINESS AFTER-
WARD, THE BETTER SLOGAN.**

When President Roosevelt began to agitate the subject of abuses and disregard of law by the trusts—the granting of rebates, and combinations in restraint of trade—and suits were brought by the government against some of these corporations, the cry was at once raised that such proceedings would hurt business.

When a reduction of the tariff was seriously talked of, all those who had waxed fat through the imposition of needlessly high duties promptly raised the same objection and sounded it loudly up and down the land: "The tariff must not be touched, because to do so will injure business."

When the conservation movement took shape and legislation to check the grabbing of natural resources by private interests was put under way, the cry was heard again echoing through the country: "This interference with great financial projects will hinder the country's development and hurt business." When, under the Taft administration, suits were pushed against the Sugar Trust and against the meat packers, the familiar alarm was sounded once more. Now that indictments have been found against individual packers, the wail is heard again: "Business is being injured."

On Mr. Roosevelt's recent tour through the West he preached common honesty, the punishment of evildoers, high as well as low, the enforcement of law and order, the suppression of corporate abuses, the welfare of the common man, and the familiar, distressed cry sounded forth louder than ever, "He will hurt business."

When the insurgent movement took form in the Republican party the same sort of opposition was raised. Nothing must be done to affect existing conditions lest business be interfered with. To stand pat meant to stand by these conditions, however oppressive or even corrupt they might be. Business was the fetich that stood above honesty, justice, the common good and all other interests.

The manner in which the people have rallied to the support of the insurgent element wherever they have had opportunity shows that they do not fear this prospect, and that they believe business will be none the worse by being shorn of its abuses; that they believe the fair deal in the tariff, scrupulous honesty in the transaction of corporate affairs, the observance of law by all classes, will not so seriously interfere with prosperity that the alarm cry need be taken seriously, and even if the equilibrium of affairs is temporarily disturbed that the result in the establishment of better conditions will more than justify their course.

The truth is that the people who have been engaged in unscrupulous and high-handed methods, who have been determined to increase their fortunes at whatever cost to the people, who have held money-making to be the chief end and aim of existence, have only themselves to blame for all the agitation of which they complain. The entire insurgent movement is in reality a protest against the often lawless and always selfish domination of this element, and an effort at the re-establishment of honesty and justice in commercial and industrial affairs all along the line. The leaders are working for the benefit of men rather than of business, and the people are following them. Business, under the auspices they hope to secure, will take care of itself.—Indianapolis Star.

**DAVENPORT LOCOMOTIVE WORKS SUFFERS LOSS
BY FIRE.**

A fire at the factory of the Davenport Locomotive Works, Davenport, Iowa, Friday evening, August 26, totally destroyed the blacksmith shop and part of the power house. The company writes under date of September 1 that the fire crippled them somewhat temporarily, but they are again getting in shape, and, with the exception of the blacksmith shop, all departments are working full force. They have in course of construction a new blacksmith shop which is practically finished and will be ready for occupancy in a few days. They estimate the loss at about \$20,000, which is virtually covered by insurance. They make a specialty of industrial loco-

tives for manufacturing plants (see ad on page 376), and will be pleased to make estimates of cost and economy of that manner of handling clay and other materials.

THE BEST IS ALWAYS THE CHEAPEST.

Only Time in his infallible laboratory, or the modern scientist with a battery of testing paraphernalia, can tell the true inwardness of quality in brick, tile or cement products. One point of quality the purchaser is quick to note, however, and that is appearance. A batch of off color brick or cement work is apt to bring a mighty prompt roar of protest from both the builder and the owner of a structure. Next to price, clean, bright color is the strongest sales argument that the maker has. Absolutely pure mineral colors, like Ricketson's "Red Brick" brand, cost a fraction more per barrel than the uncertain kinds, but their greater strength likewise makes them go farther, so that the point of economy lies altogether with the high-grade color. "Red Brick" brand colors have been made famous by their "Never Fade" slogan. They are manufactured from the stable oxides in the purest Bessemer ores, and come in five tints—red, brown, buff, purple and black. A letter to the Ricketson Mineral Paint Works, Milwaukee, will bring free samples.

FIRE BRICK.

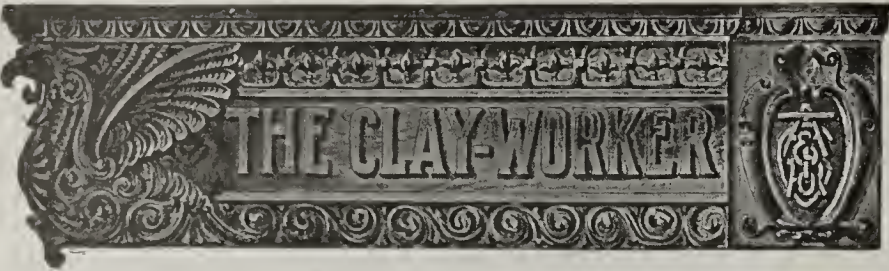
An unusually attractive catalogue has been compiled by the Chicago Retort and Fire Brick Company, of Chicago, Ill. The catalogue in the main gives information and tables pertaining to the use of fire brick, and advertises their products in a forceful, entertaining manner. There are several illustrations of their plant and their various products and the application of same. The tables give the number of brick required for one course of 4½-inch and 9-inch brick arch of various spans and springs, the circumferences and areas of circles, fusing points of Seger cones, and decimals of an inch for each 1-64th. There are also instructions for the finding of the diameter of a circle, given size of brick; for the finding of number of inches in arc, given span and spring of each; and the finding of the radius of a circle, given span and spring of arch. The information contained in this booklet, together with the miscellaneous tables and facts, are invaluable to the clayworker. The catalogue is a credit to the Chicago Retort and Fire Brick Company, which manufactures excellent lines of fire clay wares.

DR. J. A. HOLMES, DIRECTOR OF BUREAU OF MINES.

After months of uncertainty and doubt, due presumably to political intrigues by others who sought the position, President Taft has finally appointed Dr. J. A. Holmes Director of the Bureau of Mines. The appointment is in every way an admirable one, and those who have the welfare of the Bureau's work at heart, will rejoice thereat. Dr. Holmes has for a number of years been associated with similar work under the direction of the Geological Survey so he is in touch with every interest represented. The clayworkers of the land are not now so much interested in the Bureau work as they would have been had the Department of Testing of Structural Materials been left with the Bureau of Mines as was originally intended. Instead it has been transferred to the Bureau of Standards, but the good wishes of the clayworkers of the land will go with Dr. Holmes in his new work.

VITRIFIED PAVING BRICK.

The second edition of Prof. H. A. Wheeler's "Vitrified Paving Brick" is now out. It contains much new matter, which makes this book one of the best and most valuable of our paving literature, and is a credit to the author, whose writings have always been of the highest grade. The one hundred and twenty-one pages of this second edition contain articles covering every phase of the paving brick industry, from its early beginning and manufacture to the best methods of construction to-day. It is complete in every detail and a most valuable book to every paving brick manufacturer. Price, \$2.00. T. A. Randall & Co., Indianapolis, Ind., publishers.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIV. SEPTEMBER, 1910. No. 3.

CURRENT COMMENT.

The most interesting pottery to some people right now is the political pot.

* * *

The best way to improve the appearance of a concrete wall is to face it with a good clay product.

* * *

It is said that our motives are generally mixed. Well, when the mixing is carefully done, as in clayworking, it sometimes improves the result.

* * *

By and by conservation will apply to clay banks as well as to trees, and some day we will learn that our clay banks are even worth more to us than our timber resources.

* * *

Oil may help allay the dust on a road, but it is often disagreeable, and where people want to lay a really satisfactory road the thing to do is to surface it with paving brick.

* * *

After nature puts the absorption and freezing tests to some wood block and asphalt streets this winter there will probably be found more good arguments for vitrified brick next spring.

* * *

A good idea is not only to plan this winter for pushing clay products more extensively next year, but also do some mission work among dealers in building material and work them into a boosting spirit, too.

* * *

This has been a year of great awakening of municipal pride, and many towns and cities are coming to the front and advertising extensively, and out of this it is expected will come rapid development. Incidentally, this should lead to municipal improvement, more street paving, and more building of good structures, and in this connection there are two

ideas that should be kept foremost. One is brick for paving, and the other is brick and other clay products for fireproofing and constructing buildings.

* * *

Those brick manufacturers who are investing in automobiles this fall, purchased out of their season's profits, should sing praises to the people who have made it possible for them to make such purchases.

* * *

When you shut down for the winter, instead of letting your machinery stand and rust, keep things alive by starting in early to make whatever repairs, alterations and additions are necessary to put you in excellent shape for the next season.

* * *

Reduce your kiln waste as much as you can without making the reduction cost more than you get out of it and then remember that crushed scraps of brick and burnt clay make an excellent road material. The next best thing to brick paving, in fact.

* * *

It is not only interesting to observe that for proper decoration concrete people must turn to clay products, but it is also worth while to note that in some of the best reinforced concrete buildings one finds them turning to hollow clay blocks for fireproof partition walls and for other fireproofing work.

* * *

It is pretty generally conceded that the auto business has done more to help develop the building of good roads than anything else, and now, since it has been demonstrated that brick paving makes the best auto track, it should naturally follow that the same influence will be lent to the promotion of brick paving, both for streets and roads.

* * *

Of course, the tendency varies in different localities, but it is refreshing to see in some places an increased disposition on the part of the clay products people to come to the front at fairs and other exhibitions, and to see the concrete interest dwindling somewhat. These fairs and exhibitions may often fail to make direct returns to justify the exhibits made, but if the work is properly handled it is beneficial in the end, and often well worth while.

* * *

Mr. Fritz Salmen, of New Orleans, La., is enjoying a protracted visit to the old country, and has favored THE CLAY-WORKER with a number of very attractive picture post cards. The latest is dated Zurich, August 31, and states that he there met J. L. Stevens, of Boone, Iowa. They find, he says, that brick is still the chief building material, and that it is used more effectively there in a decorative way architecturally than it is here at home. The really good buildings of the old world, whether modern or ancient, are built of brick.

LEAD POISONING AND POTTERY WORKERS.

Over in Europe the subject of lead poisoning gets more official attention than it does here. For example, in France there have been some special laws made about the use of paint because of lead poisoning, and now in England a committee of the British Home Office has just made a report of inquiry into the use of lead in the manufacture of earthenware and chinaware. It seems that some lead poisoning results in the potteries over there, the number of cases fluctuating from just a few some years to as many as 450 in other years. There are very few fatalities, and it is said that in 1909 only five deaths occurred, all of which were in North Staffordshire. The committee, judging from the potteries visited, attributed lead poisoning to imperfect conditions under which the workers labor and the very casual observance on the part of employers and employes of many of the special rules in force. It is said that the poisoning is due more to glaze than lead in colors, and the probabilities are that leadless glazes will be

more and more adopted in the future, especially since they are cheaper. It was established that pottery of excellent quality can be obtained with leadless glaze and low solubility glazes. One of the recommendations made in connection with this inquiry which is worthy of special notice was the following:

A supply of milk or cocoa with milk shall be provided for all women and young persons working in scheduled lead-poisoning processes who commence work before 9 a. m. Not less than half a pint shall be provided for each worker, at the expense of the employer. It shall be compulsory on the worker to drink the milk or cocoa, unless a medical certificate is produced stating that such nourishment is unsuitable.

SOME SPECIFIC FIRE RECORDS.

There are some interesting side lights furnished on the fire losses of the world by the statistical records of various cities in their annual reports. For example, a city of somewhat less than a quarter of a million inhabitants reports a fire loss for the year of practically a million dollars. That is four dollars for every man, woman and child in the city, and a little over, for the actual fire loss, to which, of course, must be added the cost of maintaining the fire department. Analyzing the matter of fires, the report under consideration, which is for the past fiscal year, says that the greatest of all causes of fire is attributed to defective flues. Out of a total of a little over 1,000 alarms, it is known that 118 of the fires were caused by defective flues. In 207 cases the origin was unknown. Children playing with matches caused 34 fires, and various causes were assigned for a few fires here and there, but after they were all summed up it was found that of the known causes defective flues exceeded everything else. Probably many of the unknown causes were electric wires.

One of the things of more than passing interest in connection with it is that of the 1,000 fires practically three-quarters of them were reported or the alarm turned in over the telephone. In other words, the telephone reports of fire were practically twice the number that were turned in through the fire alarm boxes. This is pretty good evidence that the telephone is rapidly replacing the regulation fire alarm box, and it is evidence that a good distribution of telephones through the residence section makes a better and quicker fire alarm system than the old fire alarm box.

Unfortunately, there is not given with this report details of the cost of the fire department itself, so that we can get the exact cost of the fire loss and of maintaining a fire department, too, so as to make the bill complete. It may be safe to figure that the fire department expense is low, at least to the fire loss in this case, but, as the figures are not given, the bill is not yet complete, and we can only guess at the total tax we pay to fire and wonder how long it will be before we reduce materially this annual loss.

FLUE LININGS AGAIN.

From the fact that the greatest percentage of known causes of fire in the city, and probably in the country districts, too, are due to defective flues, we are naturally brought again to the question of flue linings and the proper construction of flues. In most of the leading cities there seems to be an ordinance now making it imperative in the building of a new house to line the flues with a proper casing of fireproof material—that is, fire clay made up into rectangular tiling and properly burnt. There are standard specified sizes and thicknesses, and this product can be obtained in nearly every city. Sometimes the builders of cheap houses try to shirk its use, because it adds a little to the expense. Especially are they inclined to do so outside of the city limits, where there are no restrictions. That is the place the manufacturers of this clay product themselves should get into the game and urge a more extended use of this product, because it is regarded as one of

the best means for insuring permanent safety in the flue, and anyway it makes a smoother and better flue, and it is worth the cost for that alone.

DISCOURAGE SKIMPY WORK.

Flue linings are not the only thing. Usually, when a flue proves defective it may be traced to inefficient and skimpy work. There are instances known where buildings have been lost by fire and the cause laid to defective flues where the flues were simply built with one thickness of brick turned on edge. Now, a flue made with brick standing on edge, one thickness of it, may look like an inexpensive job, may look like saving money, but it is not. It is endangering property, and in the end generally costs more money than it would take to build a flue with eight inches of brick all around. Brick manufacturers and dealers should emphasize these points to their customers, and especially to building contractors, and insist on their putting in enough brick to make a good job, and putting them in properly, and it is a mistake for even people who build to sell to figure that they are saving and making money by skimping the work—and this logic applies to walls and to brick buildings as well as to flues and frame buildings. A man who skimps his work fools nobody but himself. When a prospective buyer comes to look over the property, he finds that it is cheaply built, and figures from that that he should be able to buy it even cheaper than the difference in the cost of building. The man buying a house or having one built, either, is generally willing to pay a fair price if he is sure he is getting extra quality in his work.

Therefore, it is not only in order, but it is a splendid policy to urge the use of plenty of brick, and to strive in every way to eliminate this skimpy work that in time leads to cracks and defective flues and walls. Urge that old saying that what is worth doing at all is worth doing well, and in time we will have less cause for complaint about these things, and have better buildings and better chimneys, and the expense will really be less in the end than it is now because of the damage that is traceable back to skimpy or defective work.

ANOTHER CONCRETE FAILURE.

In a long article in the issue of August 30 the Toledo Blade condemns the concrete locks near Akron, and speaks in no uncertain terms of the extravagance, political manipulation, nepotism, incompetency, defective workmanship and opportunities for graft on a large scale in connection with the expenditure of \$2,000,000 of State funds for reconstructing and maintaining the State canal system. The article reads in part as follows:

"A golden stream has been flowing for five years from the State treasury, at the rate of more than \$1,000 a day, down through the old canals and locks, over the dams and waste weirs, and finally into the pockets of officials, contractors, inspectors, politicians, job holders and a small army of employees.

"The State has not been getting adequate return for all of its enormous expenditures. The Miami and Erie and Ohio canals, both extending from Lake Erie to the Ohio river, were practically closed to navigation when the work of rehabilitation was begun in 1905. Some of the new concrete locks built since that time, and through which no canal boat has ever passed, are already crumbling away, though they ought to be enduring as the Pyramids of Egypt if properly constructed. One new lock, approved by State inspectors, has fallen to pieces and been rebuilt. It is Peninsula deep lock No. 28, north of Akron. The contractor, S. P. McCourt, of Akron, was paid \$5,334 for the job, and his bondsmen released from liability. Then the State did the work over again, also making some extensions, at a cost of \$4,500.

"Other locks near Akron, which have never felt the thrust and wear of passing crafts, will soon require extensive repairs

or complete rebuilding, it is believed. Six miles north of Akron, in the wild and rocky Cuyahoga valley, and comparatively inaccessible, are the upper and lower Yellow Creek locks of the Ohio canal. One cost \$5,322.26 and the other \$5,864.83. The contractors, McGarry & McGowan, have received their pay from the State. The rough concrete work was plastered over with a smooth coat of something, presumably cement, about one inch thick. The cement on both locks, notably on the lower lock, is cracking and peeling off in large chunks. In some places beneath the cement the concrete shows signs of disintegration."

Referring to some of the defective work, but not alluding specifically to any particular firm of contractors, John C. Hanlon, employed for a time as field engineer on the Ohio canal, wrote an explanation of causes for a newspaper published in Coshocton, his home city. He said the defects in the concrete locks were caused by a combination of indifferent material, worthless contractors and incompetent inspectors.

TRADE LITERATURE.

THE AMERICAN PROCESS CO., of New York, manufacturers of patented machinery, including dryers, presses and special machinery for clayworking, has mailed us their latest catalogue, which gives complete information, with illustrations relative to direct heat rotary dryers, automatic continuous screw presses, automatic continuous cookers or digesters, and rendering tanks. If you are contemplating buying a dryer, press or cooker, you should write the American Process Co., of New York City, for more detailed information.

THE CLAYCRAFTER, in its latest issue, takes us to task for having referred to the new factory being erected by the C. W. Raymond Company as a combination brick and concrete structure, a typographical error which we are glad to correct. We should have said brick and steel structure. In calling attention to our error, the Claycrafter states that the building now in course of erection will be of massive proportions, the skeleton will be of steel, encased in clay fire-proofing and faced with brick. It will be roofed with clay tile, and it is the intention to make it an ideal clay products structure, illustrating in every way the possibilities and capabilities of clay products for factory use.

THE DEAN BROS.' STEAM PUMP WORKS, Indianapolis, Ind., well known as manufacturers of an excellent line of pumps, are distributing to the trade a neat circular, setting forth the many merits of their duplex durable steam pumps. This bit of advertising is known as circular No. 79. On one side there appears an interesting article giving information to aid prospective buyers in the comparison and selection of various sizes of pumps offered for boiler feed service, while on the reverse side is a sectional view of their duplex pump, with detailed paragraphs describing each and every part of same. Write the Dean Bros., Indianapolis, Ind., for this circular. It will prove interesting to you.

THE FROST MANUFACTURING CO., of Galesburg, Ill., is mailing the trade their bulletins No. 150, No. 160, No. 170 and No. 180, and a single sheet on which is printed an illustration and descriptive matter of the Frost rocking and dumping grates. The bulletins are printed on white enameled paper, 6x9 in size, and of the catalogue bulletin style, making them easy to file. Bulletin No. 150 gives complete information relative to the Frost vertical and fire-box boilers; bulletin No. 160, the Frost feed-water heaters, tanks and air receivers; No. 170, the Frost horizontal tubular boilers, while No. 180 is devoted to their automatic and throttling heavy duty engines. The Frost Manufacturing Co. has a high reputation in their lines and has been furnishing clayworking plants for many years. If you care to know something worth while about boilers, engines, grates, heaters, tanks, air receivers, etc., write them for their latest bulletins.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**
[See page 327.]

FOR SALE, WANTED, ETC.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brick-making. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

T. A. RANDALL & CO.,

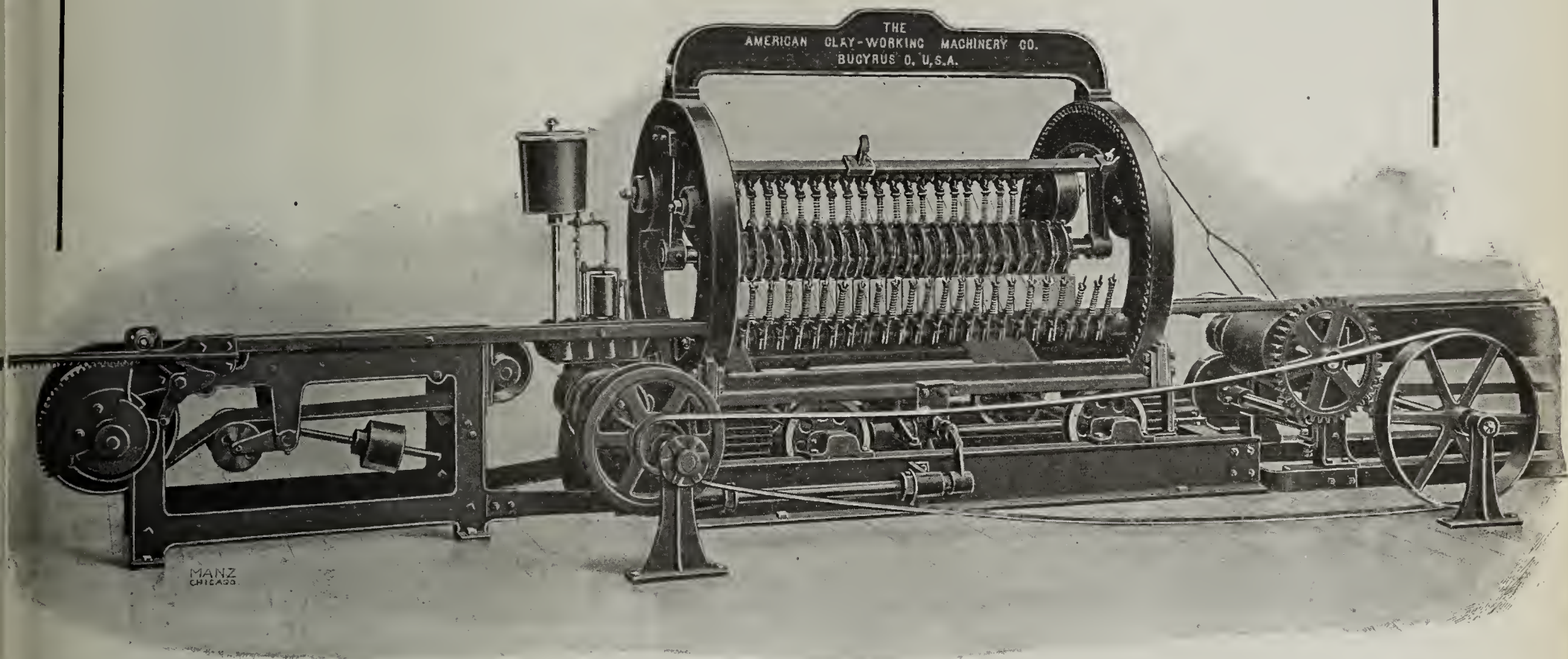
For Sale, Wanted, Etc., Ads Continued on
pages 318-320.

"A Quality Above All Others" in Clayworking Machinery.

Automatic Cutter

The accompanying cut shows our No. 20 Automatic Cutter, which is one of half a dozen styles of automatic cutters we build. This cutter is simple, durable, accurate and rapid. It is compact, occupying the minimum of space, and overcomes the swelling and buckling of the bar of clay.

The rotary wire frame is driven by two large pinions in the center of the machine. These pinions are driven by a worm gear and worm, which gives a steady motion to the wire reel. The worm, or driving shaft, is set at right



angles with the cutter, and is driven with a friction clutch pulley. This friction clutch pulley is operated by the movement of the carriage, which starts the wire reel in motion, and it is thrown out of gear by the rotating wire reel.

The friction clutch pulley dispenses with the objectionable jaw clutch, and by its use it is possible to run the cutter at a greater capacity.

The cutting table is driven from a jack shaft. This arrangement dispenses with the dangerous tumbling shafts that are generally used. There are two sets of improved toggle wire fasteners, which permit more time for the wires to pass through the column of clay and leave them at rest in a horizontal position, which is the most advantageous position in replacing broken wires. This can be done without stopping the machine. The wires have a shearing action when passing through the bar of clay, making as perfect a cut as can be made with a wire-cut machine.

The wires are prevented from cutting the bar of clay before the proper time by means of a simple band brake and brake wheel. The carriage is kept in register with the moving bar of clay by a most simple register device. There is rotating motion to all its parts, so that any wearing of these parts does not affect the accuracy of their operation. The platens can be changed for cutting different thickness in a few minutes. The wire reel is carried on six track wheels, which are provided with eccentric pins to take up the wear. The cutter is built high-grade throughout.

The American Clay Machinery Company
BUCYRUS, OHIO, U. S. A.



"A Quality Above All Others" in Clayworking Machinery.

"A Quality Above All Others" in Clayworking Machinery.

Press Made Fire Proofing

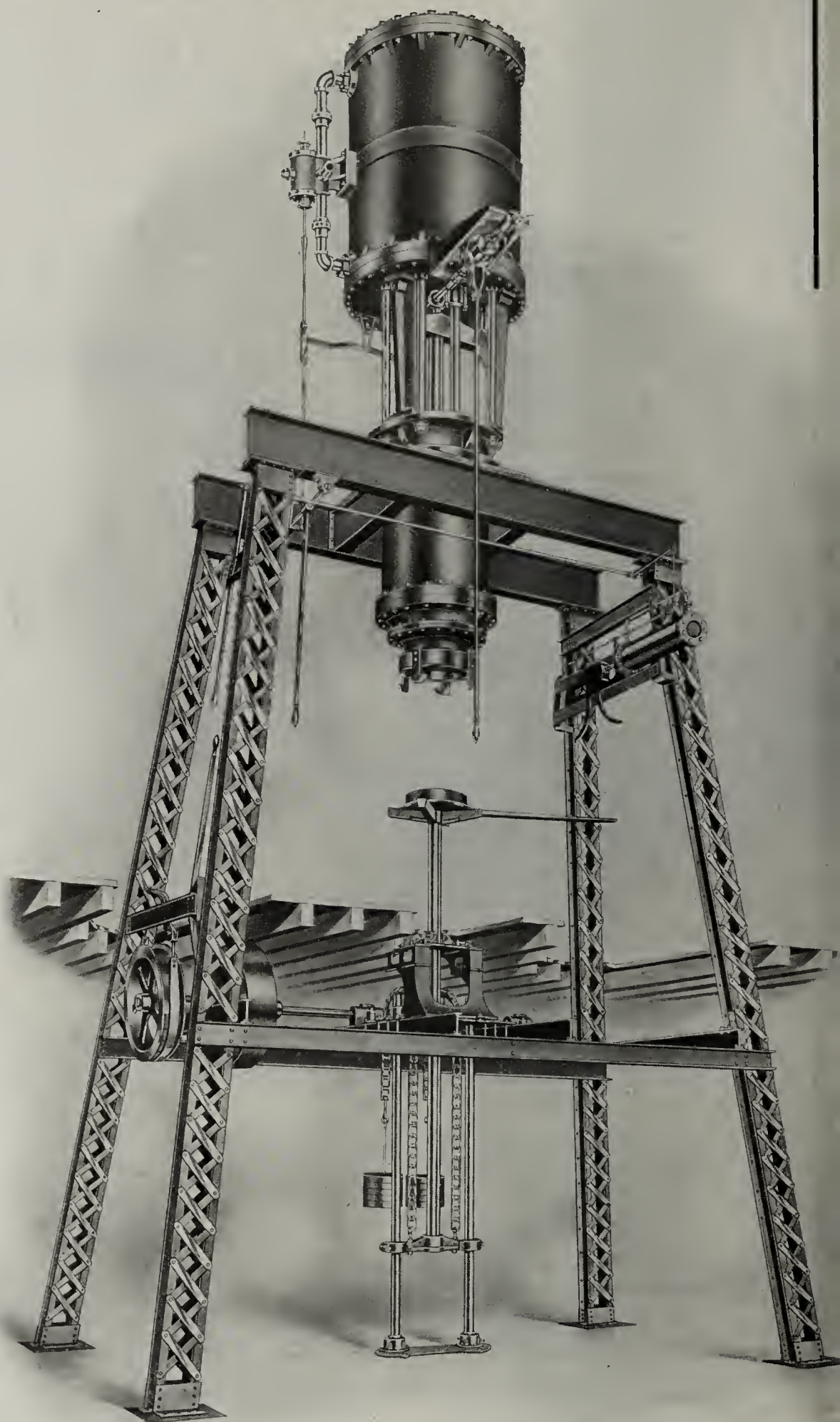
For the profitable production of sewer pipe, fireproofing and other clay products our Sewer Pipe Presses are superior.

The demand for better machinery in modern clayworking methods has led to almost a complete revolution in the building of this class of clayworking machinery and appliances.

In these improvements the American Clay Machinery Company has taken a leading part. Our machinery has long been recognized as being well designed and exceptionally well built. A superior combination of methods, material and workmanship has given our line of sewer pipe machinery and appliances a quality which is recognized and which is an assurance of successful operation.

In our 52-inch Press the clay cylinder is ample and is carefully fitted and bolted, being substantially reinforced. The shafting, disc rod, connecting rods and pistons are large and made of steel; the valves are large and of approved type. In a word, each machine is, in every detail, built according to high-grade engine practice. Our line of cutters includes both automatic and hand power, and we make cars, trucks, rounders, formers, trays, turners, drums and other appliances, as well as any dies which may be required. The frames are carefully made of wood or steel, as desired, our steel channel lattice-work frame being a most substantial setting for this class of machinery.

We build every class of machinery for making all kinds of clay products by all processes.



52-inch Sewer Pipe Press, Style P.

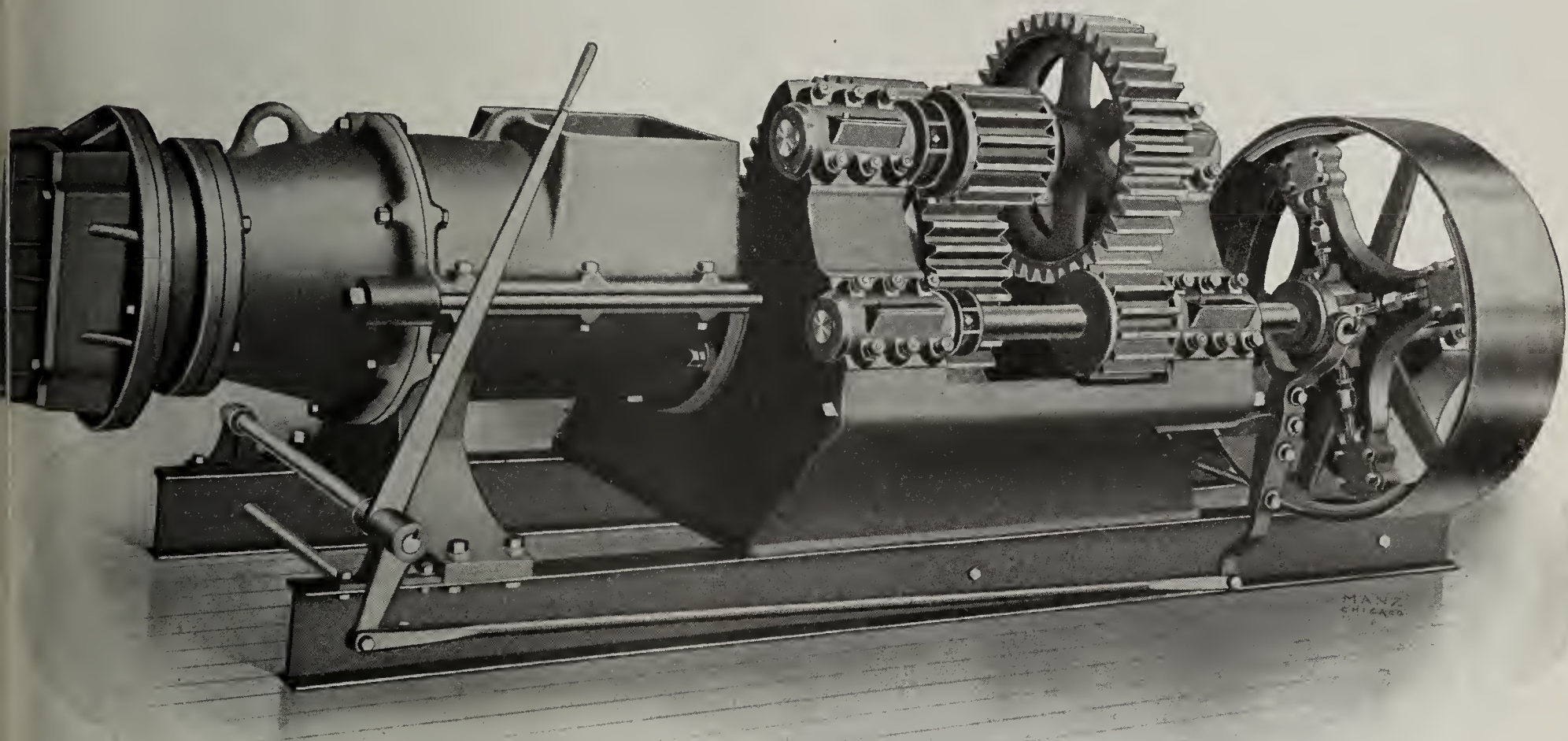


The American Clay Machinery Company
BUCYRUS, OHIO, U. S. A.

"A Quality Above All Others" in Clayworking Machinery.

No. 43 Tile Machine

The No. 43 Tile Machine is making daily demonstrations of its success in a number of well conducted tile factories in various parts of the country. It has a wide range in size and a good capacity combined with most excellent construction. This machine is superior for hollow block and conduit manufacture as well as tile. It is provided with a tapered nozzle and specially designed auger and knives to facilitate the profitable production of a high grade of hollow ware. The mixing knives, auger and auger casing are made of our special mixture of iron, which promotes long and satisfactory use. The gear frame is self-contained, mounted on heavy steel "I" beams. Heavy steel tie rods are provided on each side of the machine to receive the end thrust strain. The end thrust is received by an independent adjustable thrust bearing, holding large chilled discs and a bronze disc running in oil. The gearing



is generously proportioned with heavy wide teeth, the pinions being shrouded. The shafting is heavy and is forged from the best steel billets in our own forging department. The bearings are a part of the main frame and are carefully made and babbitted with a high grade of metal. All bearing caps are held secure by heavy bolts and jam-nuts. The outer end of the pulley shaft is supported by a neat pedestal bolted to the steel "I" beams.

The intermediate shaft is located on top of the gear frame, and so placed as to be more easily removed. Any shaft can be removed without molesting the others. The machine is provided with friction clutch pulley 42 inches diameter and 12 inches face, which should run about 200 to 225 revolutions per minute.

Floor space: Length, 12 feet 6 inches; width, 4 feet 8 inches; width of skids, 3 feet 4 inches. Height from floor to top of hopper, 3 feet 8 inches; height over all, 4 feet 11 inches.

We build everything required in tile plants.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



American Steam Pipe Rack Dryer

(Patented)

We have just received letters patent on a number of new features in our improved Steam Pipe Rack Dryer which place it far in advance of all dryers of this class. With these additional improvements the problem of economical and thorough drying has been simplified. The American Steam Pipe Rack Dryer is making good wherever used and will be of interest to you. It costs you nothing to investigate this matter and it may be costing you a great deal not to investigate it. It is an economy in time, fuel, space and maintenance. The improved Cable conveying system which we install in connection with our Steam Pipe Rack Dryer is a feature which means much in cheaper handling of the brick from the brick-making machine to the dryer and from the dryer to the kiln. The pallets when emptied are returned by the conveyor to the brick machine.

This system cuts out all trucking from the machine to the dry racks and all wheeling from the racks to the kilns. The brick being handled on pallets at all times, which insures a much better quality of brick, because handling each brick by hand necessarily caused more or less spoilage and marred the brick. You are invited to investigate the American Steam Pipe Rack Dryer. It's worth your time.



Centrifugal Screen

We are going to tell you all about this screen in five words. It is

"BUILT RIGHT AND RUNS RIGHT"

If you are interested in screens and want a description of this Centrifugal Screen Success, we will mail you a circular about it which tells the whole story, but in this page we are going to allow the men who are using this screen to tell you how they looked for repair bills, how they searched for flaws, how they expected troubles.

They have been "through the mill." Just listen to them talk about it.

"Our Centrifugal Screen screens the clay very fast. The men who operate the Screen are pleased with results."—Columbus Plate Glass Co., Blairsville, Pa.

"The Centrifugal Screen has certainly surpassed our expectations. We have run the Screen 60 days without a cent's worth of repairs. We believe it will run indefinitely without repairs."—Michigan Vitrified Brick Co., Bay City, Mich.

"We have two of your Centrifugal Screens. One has more than paid for itself in labor saved. It is handling material for 100,000 brick per day. We shall use these Screens exclusively in all our plants in the future."—Coffeyville Vitrified Brick Co., Coffeyville, Kan.

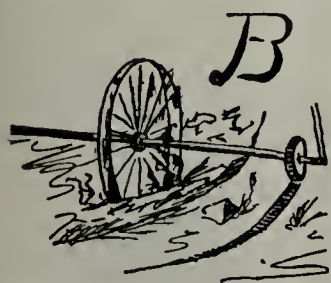


The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



BUILDING OPERATIONS in the city of Toledo for the first eight months of the year and up to September 1, as shown by the records at the office of the city building inspector, disclose a loss as compared with the same period of 1909 amounting to a little more than \$100,000. During that time 1,095 permits were issued for new structures of the estimated value of \$2,240,385, as against 910 permits in 1909 of the estimated value of \$2,350,893. The loss was made in June and July, when building operations fell to a minimum in this city without apparent cause. August has shown renewed activity, making a gain of about 85 per cent. over the corresponding period last year. During the month 190 permits were taken out, valued at \$271,215, as against 111 permits last year, valued at \$146,709. One feature of the situation which has been especially hard on the building brick industry is the fact that very few commercial and industrial structures have been included in the list of new buildings in this section this year. Residence building has held far above the figures of last year, but as the heavy end of the brick business lies in the commercial and industrial end, local brick interests have felt its absence keenly this summer. Fortunately, there has been a splendid outside demand for their products, carload after carload being shipped out, especially into Michigan territory, in response to a growing demand from that section. The result has been to keep the local plants busy, and to keep down what might otherwise have developed into an annoying surplus of stocks. As it is, there are but few building brick on hand, with the opening of fall business here and an increased demand anticipated. On the whole, there is but little, if any, complaint as to conditions at this time, or as to the volume of business done this summer.

Naturally, prices are holding up well, in view of the prospect of better trade and the outside calls for Toledo brick. For shipment outside of the city hard brick are being sold at about \$6.25, with 25 cents additional for face brick, f. o. b. Toledo. For city delivery the bulk of business is being done at about \$7.25 to \$7.50 per thousand. The local kilns are all burning now in anticipation of fall trade, and some local concerns have recently increased their capacity. Other clay-working industries appear to be enjoying a normal volume of business. Potteries are for the most part in active operation, and are finding no trouble in disposing of their output at living prices. Tile plants are running at or near capacity in most cases, and a live demand from many sources has served to keep stocks from accumulating. Not only has there been a good market for sewer pipe and drain tile for municipal purposes, but there has been an unusual call from farming sections, where farmers enjoying prosperous times are disposed to expend a portion of their savings in improving their farms.

The unusually large amount of road work which has been under way this summer has been another source of profit to drain tile concerns. This county during the past couple of months has alone let contracts for more than a hundred thousand dollars' worth of road improvements. While it is probable that street improvement work in municipalities of this section will fall somewhat below that of last year, there has nevertheless been a healthy demand for paving block, and manufacturers and dealers feel that the summer has been a fairly lucrative one.

Altogether, the situation has been quite satisfactory, and while there have been no phenomenal spurts of business, it is assured that when the yearly balances are struck the books will show the red figures in the right column.

Toledo brick manufacturers, members of the Chamber of

Commerce, who have an extensive outside trade and do a large shipping business, will be immensely benefited by the new shippers' guide now being issued by that organization to its members. The organization is naturally rather proud of its achievement, as the book is the first of its kind issued by a commercial organization. Cincinnati, Dayton, Grand Rapids and a number of other cities have undertaken the job, but were forced to give it up because of their inability to secure the necessary inside information from the carriers. The book, which is now on the press, will contain about 200 pages, including information relative to express companies and every other available shipping route, numbering more than 15,000 routings from Toledo to 5,800 different cities and towns in the United States. The new guide tells at once the routes to any shipping point, the time of arrival of trains, and all other details that should be observed to obtain good service. An expert railroad traffic man has been employed for more than five months in securing the information and compiling the matter, which is now copyrighted and will be furnished free to all members of the organization.

The Bagley Pottery at Zanesville, Ohio, was destroyed by fire at an early morning hour recently, entailing a loss of \$25,000. The fire department was badly crippled in fighting the fire on account of the low pressure and scarcity of water. Fifty men were employed by the institution.

A loss of \$150,000 was entailed at Akron, Ohio, recently, when the plant of the Akron Tile and Roofing Company was destroyed by fire. The blaze was first discovered in the drying room. Owing to low water pressure the firemen were greatly handicapped in their efforts, and it was two hours before the fire was under control. The origin of the fire has not been determined.

A contract which will consume a large number of brick was recently awarded at Lima, Ohio, when William Brodbeck, of St. Mary's, was awarded the job of erecting the new tuberculosis hospital in that city, estimated to cost \$60,000.

The Collinwood Brick Company, of Toledo, recently made a number of improvements at their local plant. Among other things they installed a new brick machine, which will add 50,000 brick to the capacity of the plant. The machine was put in operation the first of this month, and is giving complete satisfaction.

Two more stories will be added to the Lasalle & Koch Company store, one of the largest department stores in the city, within a few weeks. Plans are now under construction for the improvement. As the structure will be of brick, a nice contract awaits some local concern as soon as the plans are ready and bids received.

T. O. D.

A NEW DEVICE FOR LOADING BRICK ON BARGES.

Captain William P. Isreal, of Norfolk, Va., well known along the Atlantic coast, has invented a device that will load and unload bricks at the rate of 20,000 an hour under favorable circumstances. This invention, it is claimed, saves hundreds of thousands of bricks from being broken while being stowed on barges and boats or piled on docks. It is a simple cage constructed to hold some 750 bricks. When it is filled at the kiln it carries them to the car or boat, where the bottom plates are removed and the bricks are deposited neatly piled up. In unloading the cage is slipped down over the pile, the bottom plates joined to it, and the bricks are lifted and carried wherever wanted. Two piles fill an ordinary brick truck, and they are loaded and unloaded without one brick being touched by hand. This cage also keeps tally of the number, and can be made to fit any size or kind of brick.

We thought autoing a kind of expensive luxury, but those who are in position to say things about it say that aviation has autoing backed off the list when it comes to expensiveness.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE BUILDING interests of the Twin Cities are in a state of indecision at present. While the crop outcome has proved to be better than it seemed that it would be a few weeks ago, yet there has been a serious loss from the crop damage, and the result is a shortening up of operations in many directions. In retail merchandising it is to be observed clearly, and the business being done is materially less than was expected up to the time of the crop loss. The building interests have not felt any such loss, but there is always a dullness at this time of the year, and this is accentuated by the uncertainty. Under any circumstances, there is a certain slowing down now, but the fall often sees the starting of a number of good sized jobs, which so far are not in evidence for this fall.

The terrific forest fires which have devastated vast areas of Idaho and eastern Washington point but one more moral to the unwisdom of inflammable construction—not that the forests could be fireproof, but from the fact that they furnish the material which is just as inflammable in building construction as it is in the forest. With the dry season causing apprehension everywhere lest a fire of magnitude in some of the cities should exhaust the water supply, the wisdom of brick construction as a fire resistant and a safeguard against fire becomes more and more apparent. If brick manufacturers and brick contractors would utilize the opportunities offered to have some mention made in the daily and weekly newspapers of their communities, it would be a big help toward exploiting brick.

The Minnesota State Agricultural Society held its annual display the week of September 5 to 10 at the grounds between Minneapolis and St. Paul. This is one of the largest State fairs in the country, and has an attendance every year of from 350,000 to 500,000. President Taft and ex-President Roosevelt delivered addresses at the fair this year. The display of building materials was woefully limited as compared with what it might be if the interests named would take hold. There were a few brick exhibits, and quite a number of concrete. Silos in concrete and frame construction were displayed, but brick silos, which excel either, did not seem to be in evidence. The opportunity of demonstrating to the farmers, who need to be cultivated for permanent construction, was practically neglected. If the Northwestern Clay Association were a little stronger, the organization itself should take up the matter of a complete exhibit of the different materials of brick and of clay, and thereby benefit the entire brick industry. There was a little showing of clay drain tile at the fair, where there should have been a complete showing. Furthermore, such exhibits should be exploited in advance in the form of catchy and brief reading notices through the country press. Such exhibits as the state and county fairs offer a good opportunity for furthering the advantages of brick.

The building trades of Duluth, Minn., recently devoted one Saturday to an all-day picnic at a nearby lake. The trip was made by automobiles, and had an attendance of about 150. It is expected that it will become an annual affair.

The engine room of the Minneapolis Brick and Tile Company, in North Minneapolis, was badly damaged by a recent fire.

The Chicago Great Western Railway Company has secured a right of way from Goodhue, Minn., to clay beds in Belvidere township, a few miles east, and will lay tracks and be hauling clay from there to the plants at Red Wing and Hopkins, Minn., in a short time.

Building Inspector James G. Houghton, of Minneapolis, has touched another weak spot in reinforced concrete work by condemning a large amount of reinforcing steel because it was not up to the required standard. Mr. Houghton recently vis-

ited the steel mills and took the matter up with the managements. They promised that closer inspection would be given.

The city of Minneapolis will expend about \$300,000 in sewers, gutters, curbs, sidewalks, etc., the coming season.

Minneapolis building permits for August were \$1,370,605, against \$1,312,570 for August of 1909. For eight months the total has reached \$10,656,015, against \$9,019,040 for the same months of last year. The building inspection department anticipates a liberal gain over last year for the twelve months, and believes that it may reach \$15,000,000.

A striking use of ornamental terra cotta is to be seen in the entrance to the new cafe of the Rogers Hotel, Minneapolis, which is lined with rich terra cotta blocks. A rustic grotto effect is formed, and the tile harmonize nicely with the general color scheme. The use of terra cotta for ornamental purposes, interior and exterior, is growing freely in the Northwest.

H. Wehmann, of Minneapolis, has awarded the contract to N. Jensen for the erection of a handsome modern brick residence on Pillsbury avenue, near Franklin. It will be 38x50 feet in size, red Menomonie brick exterior walls. Cost, about \$15,000. William Channing Whitney, architect.

J. H. Ellison has let a contract to Heaton & Ellison, of Minneapolis, for the erection of a handsome brick residence at 2101 Pillsbury avenue. It will be 54x60 feet in size. Cost, \$30,000.

The Syndicate Holding Company, of Minneapolis, will erect a brick store building for a dry cleaning establishment at Second avenue South and Thirteenth street. Cost, \$30,000.

Barclay Cooper received the general contract for the addition to the Curtis Court apartment building at Third avenue South and Tenth street in Minneapolis. Cost, \$75,000. It will be of brick construction, modern throughout. Lindstrom & Almars, architects.

The city of St. Paul will have plans prepared for the erection of a modern central police station. Work may be started this fall or may not be started until spring.

E. A. Upham, of St. Paul, will erect a row of brick stores at University avenue and Raymond, in the Midway district. It will be of pressed brick, 66x130 feet in size, containing seven store rooms. Cost, \$25,000. F. H. Ellerbe, architect, St. Paul.

The J. & W. A. Elliott Company has work well under way for the new brick Elliott Memorial Hospital building at the State University in Southeast Minneapolis. It will be five stories, brick, 54x184. Cost, \$140,000. William M. Kenyon, architect.

Deeks, Deeks & Smith, of St. Paul, have contracts for several new brick buildings at the Como avenue shops of the Northern Pacific Railway, to cost a total of \$100,000. There will be a one-story brick addition to the car shops, 190x22 feet; a brick paint shop, 192x200; a two-story brick stock room, 40x60, and a one-story brick addition to the boiler house.

Cameron & Co., general contractors, of St. Paul, have started work on the new school building at Edmund and Syndicate streets, brick construction, which is to cost \$50,000. They have also started work on their contract for a brick boiler house at the City and County Hospital, to cost \$50,000.

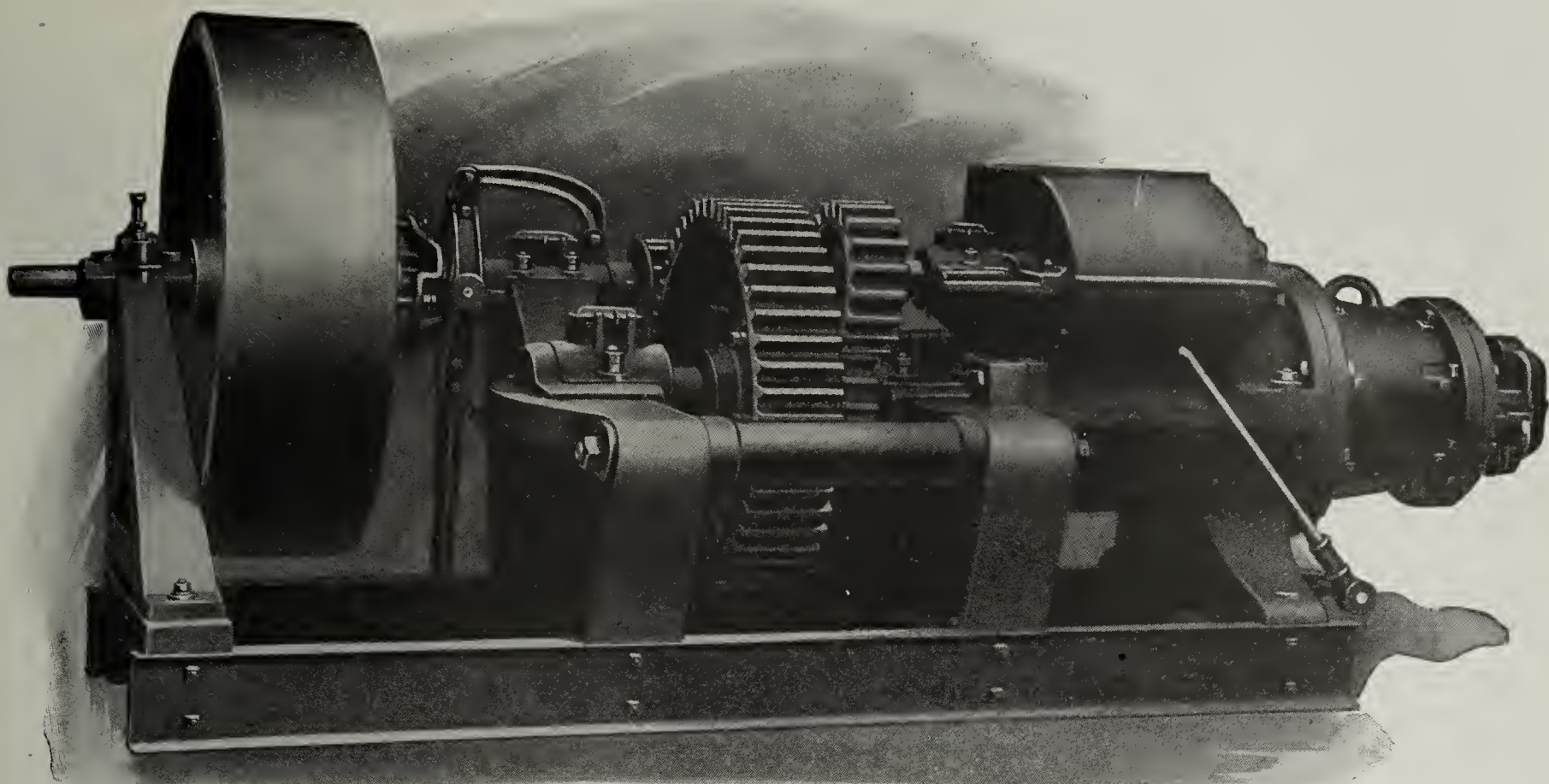
Watson P. Davidson, of St. Paul, will erect a three-story brick building at 419-423 Sibley street, to be occupied by the Dakota Garment Manufacturing Company, which will remove from Duluth. It will be 50x125 feet in size.

The H. N. Leighton Company has the general contract for the erection of the A. W. Wright building at Seventh avenue South and Third street, Minneapolis. The building will be seven stories high, of brick exterior walls, and will cover about 135x165 feet. It will be fireproof. Cost, \$200,000. Kees & Colburn, architects. The Great Northern Implement Company will occupy the entire building when it is completed.

The Bailey-Marsh Company, of Minneapolis, has the general contract to erect a one-story brick freight house at 730-822 North First street for the Chicago, St. Paul, Minneapolis & Omaha Railway. Cost, \$30,000. It will be 512x30 feet in size.

August Cederstrand & Co., of Minneapolis, received the general contract for the erection of an addition to the fireproof warehouse of the Boyd Transfer and Storage Company, Minneapolis, at Lake street and Fourth avenue South. There will be a fireproof paint shop. All will have brick walls. Cost, \$65,000.

T. WIN.

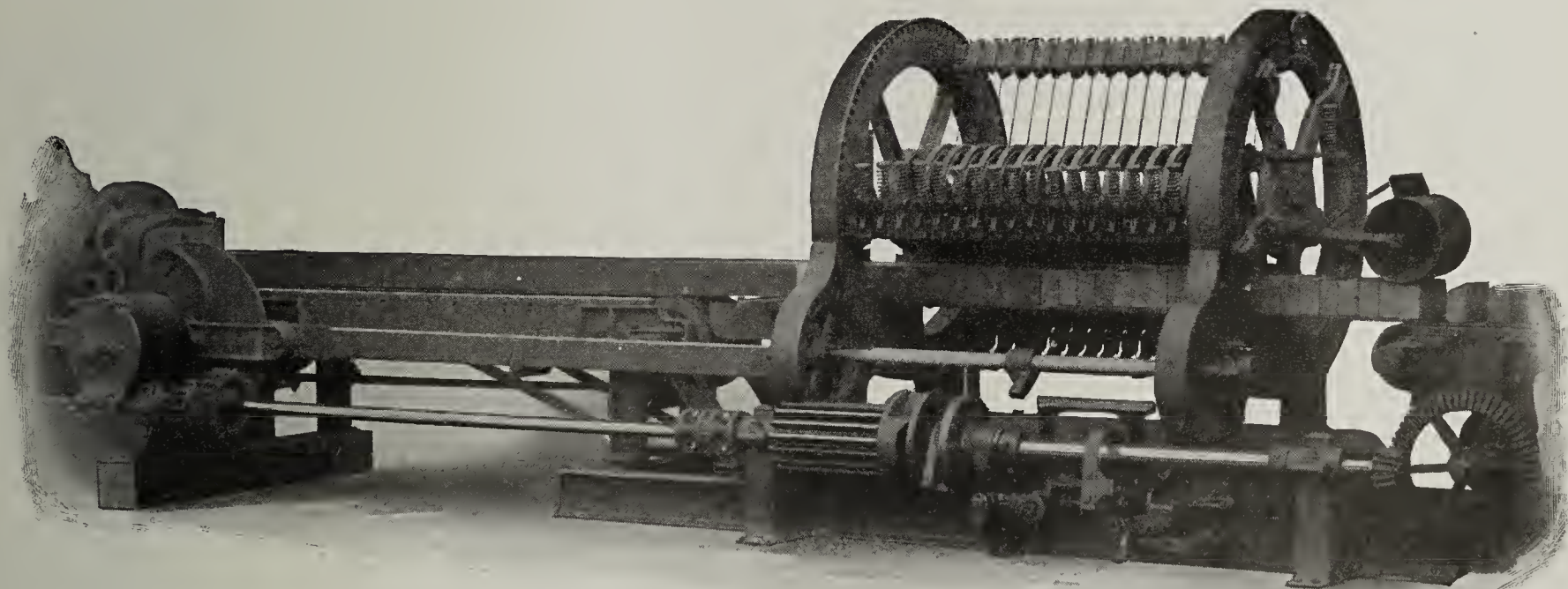


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



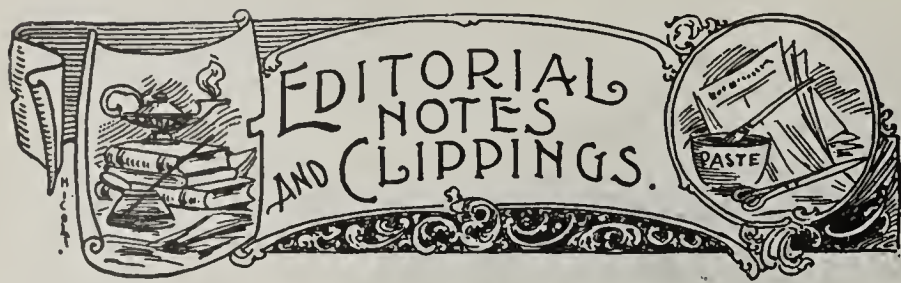
AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 352-355.



Arthur and George Libby, of Fort Dodge, Iowa, will start a large brickmaking plant at Lehigh, Iowa, where they have an immense deposit of clay.

A fire which started from an overheated kiln completely destroyed the Van Cleve tile factory at Easton, Ohio, recently. The plant will be rebuilt at an early date.

Harry Lepper, an employe at the plant of the Monmouth Mining and Manufacturing Company, Monmouth, Ill., fell into a pug mill and was crushed to death before the machine could be stopped.

Fire destroyed the Paola Brick and Tile Company's plant at Paola, Kan. The fire started in the machinery building, which was entirely destroyed, with all the machinery. The loss is estimated at \$15,000, partly covered by insurance.

John W. Hyser, a brick manufacturer of New Castle, Pa., died August 20 at his home in Anglesea, N. J. Mr. Hyser left an estate valued at \$200,000, and among the beneficiaries named in the will were a number of the employes of the brick plant.

T. H. Gwynne, for many years a brick manufacturer of Pittsburg, Kan., where he was manager of the Pittsburg Vitri-fied Brick Company's plant, died recently at Khedive, Pa., where he had been since last fall, when his health failed. He leaves a wife and adopted son.

The Wabash Brick Company, of Terre Haute, Ind., is planning to increase the capacity of its plant by building a steam dryer and making a number of other improvements, and will develop a deposit of shale for making a fine face brick. The present capacity of the plant is 25,000 brick per day, and this will be doubled.

The Mackey Brick and Tile Manufacturing Company is one of the large and successful industrial concerns in the State of Texas. This company manufactures face brick, fire brick and common brick, and has an immense plant located at Calaveras, Texas, about twenty miles from San Antonio. J. H. Kampmann is manager.

Bert Wendell, employed at B. Andersons & Co.'s brick yard at Strathcona, near Edmonton, Alberta, Canada, was caught in the shafting and whirled around at a fearful velocity. The force of his body broke a 6x2-inch plank. The body, when the machinery was stopped, was hanging over the shaft. Wendell was removed to the hospital, where he died.

Barrineau Brothers, of Quintette, Fla., contemplate putting in a pottery to operate in connection with their brick plant, for the purpose of making turpentine cups, which they say are made on the same plan as flower pots. They desire to correspond with machinery manufacturers who can furnish the requisite machinery. Charles R. Barrineau is manager of the plant.

M. E. Jacobs's brick plant at Berlin, Conn., has been running to full capacity all summer in order to fill the rapidly increasing demand for Jacobs's brick. They have just finished burning one kiln containing a million brick. The plant is equipped with a steam dryer which enables them to run the year round, and in addition Mr. Jacobs has installed many labor-saving devices.

John M. McGarrah, thirty-six years of age, vice-president and general manager of the Palmer Brick Company, Atlanta, Ga., died suddenly from apoplexy at his home, August 29. Up until a few minutes before his death Mr. McGarrah was apparently in the best of health and spirits, and was on the front porch of his home, talking with his family, when he was suddenly taken ill, death following a few minutes later. A wife and two children survive.

At a meeting of the stockholders of the El Paso (Texas) Brick Company, which was held recently, J. M. Wyatt was elected president to fill the vacancy caused by the death of Mayor W. F. Robinson. Mrs. Robinson, the mayor's widow, was elected vice-president, E. H. Rogers was again elected secretary, and James White auditor. Mr. Wyatt and Mrs. Robinson were elected to the board of directors to fill the

vacancies caused by the death of Mayor Robinson and H. G. Ross.

Sparks from a passing locomotive set fire to the dryer of the Harbison-Walker Refractory Company's plant at West Homestead, Pa., causing \$200 damage.

The Fort Dodge Superior Clay Works recently filed an amendment to its articles of incorporation with the secretary of state increasing its capital stock from \$50,000 to \$10,000.

The Bertler Brick Company's plant at Manitowoc, Wis., is to be improved and remodeled by the installation of additional machinery, etc., which will greatly increase the capacity of the yards.

The Sheldon Brick Company, of Urbana, Ill., will expend \$25,000 improving the plant, including the installation of a dryer and additional kilns, and expect to run the plant the year through hereafter.

Richard B. Bannon, of Louisville, Ky., died recently at his home in that city. He was a director of the P. Bannon Sewer Pipe Company, and had been connected with the clayworking business for many years. He is survived by a wife and six children.

Frank Hillenbrand has severed his connection with the firm of Wuerz & Hillenbrand, of Brooklyn, N. Y., kiln and chimney builders, and has gone into business for himself as mason builder and general contractor at 31 Smith street, Brooklyn, N. Y.

The Monticello Brick Company, Clarksburg, S. C., has been incorporated, with the following officers: President, B. B. Stout; vice-president, Ellis Byon; secretary and treasurer, P. M. Long, and F. L. Bennett, general manager. They own a number of plants and turn out a very superior quality of brick.

The Rose Brick Company, of Roseton, N. Y., has just made the largest shipment of brick ever made by the company, covering over 4,000,000 brick. It took eleven barges to carry the shipment. The company recently closed a contract with the Consolidated Gas Company of New York City to furnish the brick for the erection of that concern's mammoth new plant to be erected on Long Island.

B. H. Ward, of Fairmount, has an option on a fine bed of clay at Glenville, Minn. Drillings have shown from eighteen to thirty-eight feet of the finest kind of tile clay. Mr. Ward will organize a company at once to build a twelve-kiln plant for the manufacture of drain tile, hollow building blocks and brick. The company headquarters will be in this city. Mr. Ward will be the president and general manager.

The Fond du Lac (Wis.) Pressed Brick Company will extend its business by manufacturing building block and draining tile in addition to the pressed brick which is now its exclusive product. The drain tile and building block will be manufactured by the use of new machinery recently purchased from the C. W. Raymond Manufacturing Company, of Dayton, Ohio. This machinery also enables the company to manufacture brick by the wire-cut process.

The plant of the American Clay Products Company, which was erected about a month ago at Stillwater, Minn., for the manufacture of tiling and similar products, was burned last month. One of the pipes that carries the oil which is used in the process of manufacture burst, caught fire, and in a few minutes the flames had spread to every part of the buildings. William Tekle, an employe, who tried to check the flames, was severely burned. The plant cost \$100,000, and the loss will reach \$25,000.

At the annual meeting of directors of the Farmers' Co-operative Brick and Tile Company, of Mason City, Iowa, held recently, the following officers were elected: President, C. G. Messerole, of Gowrie; vice-president, C. E. Hughes; secretary, T. L. Flemming, and treasurer, W. R. Flemming, all of Mason City, Iowa. It is announced that work will be begun in earnest on the new \$200,000 brick and tile plant. The stockholders of the company are among the leading farmers of the State.

Late Bowman, aged twenty-eight, was so badly injured in a gas explosion at Williamstown, Ind., that he died. Bowman was night watchman for the Milroy Drain Tile Company, and part of his duty was to watch the gas fire in the kiln. The gas had gone out, and in attempting to relight it the explosion occurred. Bowman was hurled several feet, his skull being crushed. The entire kiln of tile was destroyed. Bowman was recently the victim of a gas explosion at the same

(Continued on page 312.)

J. W. SIBLEY, President

J. A. MENGE, Vice-Pres't.-Treas.

W. L. SIBLEY, Secretary

SIBLEY-MENGE PRESS BRICK COMPANY

GENERAL OFFICE

SUITE 842-845 BROWN-MARK BUILDING

GREATER BIRMINGHAM, ALA.

September 5, 1910.

Messrs. Chambers Bros. Co.,

Philadelphia, Pa.

Gentlemen:-

I have just received copy of your catalog #21, and in looking through same I find a testimonial regarding your dry pan which I wrote May 22, 1907. Some three and a half years have elapsed since then and the pan is still performing its duty faithfully. It has been in constant operation all this time, and we have only renewed the bevel pinion once; the master bevel gear still being in very good condition. The only wear otherwise on this pan has been the natural wear on screen plates and grinding discs. We endorse all we said in our testimonial of 1907, and in further evidence of our high regard for your machinery, we will place order with you for two more of these pans for the proposed enlargement of our plant this Winter.

Yours very truly,

SIBLEY-MENGE PRESS BRICK COMPANY,

By

J. W. Sibley
President.

THE CHAMBERS BRICK MACHINERY

Main Office and Works

PHILADELPHIA, PA.

Sales Offices
CHICAGO, ILL.
ATLANTA, GA.
LONDON, ENG.

EDITORIAL NOTES AND CLIPPINGS—Continued.

place, escaping at that time with severe burns. A widow and one child survive.

The plant of the New England Brick Company, at Epping, N. H., was damaged to the extent of \$5,000 by fire last month. The loss is partly covered by insurance.

The Drury Brick and Tile Company, of Essex Junction, Vt., has installed a machine for making hollow brick in addition to the regular output of brick and tile.

The Holmes brick yard, at Holmes, Pa., has been sold to William and Frank Mink, of Darby, Pa., who will operate the plant under the firm name of William F. Mink & Brother. Both members of the firm are experienced brick men.

The Rome Brick Company, Rome, N. Y., has been incorporated, with \$25,000 capital stock, by Walter C. Harrington, Herbert L. Rathbone and T. Edgar Gilbert, all of Rome. A plant will at once be erected for the manufacture of stiff mud brick.

The immense new clay products plant of the Western Fire Clay Company at Murray, Utah, is being pushed to completion as rapidly as possible. They are spending close to a million dollars on the construction work. The Oregon Short Line has just completed the installation of spurs from their main line to the plant.

A fire that did \$50,000 damage swept the Rich Hill (Mo.) vitrified brick and tile plant recently. It originated in the drying sheds, and destroyed the steam-piping system and more than 100 tram cars loaded with green tile, and other property. The plant is owned and operated by Walter S. Dickey, of Kansas City. There was no insurance, but the work of rebuilding was begun at once.

Manager Skjelbred, of the Washburn Brick Company, Washburn, Wis., is highly elated over the success of the first kiln of brick turned out from the plant this season. The kiln contained 180,000 brick, and there was hardly a poor one in the entire burning. The brick is first class in color and has a good ring, and there is a great demand for them. The plant is now turning out brick at the rate of about 30,000 a day, and the second large kiln is now under the course of construction, and will contain almost 400,000.

The Watsonville Brick and Clay Products Company, Watsonville, Pa., shipped 205 carloads of brick in July, and would have made a larger record but for the fact that they were short of yard help. The shipments aggregated nearly 1,500,000 brick, building and paving. The addition of two new kilns has about been decided upon, made necessary by the constantly increasing demand, and an electric equipment will be added to furnish light and provide power for operating a coal unloading and distributing apparatus.

Henry Binder and J. Fred Binder, operating under the firm name of Binder Brothers, brick manufacturers, of Emaus, Pa., have joined partnership with William F. Stimmel, of Kutztown, Pa., in conducting the latter's factory at the latter place. Henry Binder will continue in charge of the factory at Emaus, and J. Fred Binder will assume active superintendency of the factory at Kutztown. The latter factory is one of the best equipped in that part of the State, with an entirely new brick-making machine and a large double drying establishment.

Within two or three weeks the brick and tile plant of Bradshaw & Co., at Fort Dodge, Iowa, which was destroyed by fire July 22, will again be ready for business. The engine, boiler and machine houses and the main dry house have been completed of brick and hollow tile. They are of strictly fire-proof construction. The company while rebuilding its plant also has increased its capacity between 25 and 50 per cent. They shipped eight cars of brick and tile per week before the fire. Many improvements in the plant also have been made, among which is a new system of drying.

W. Horace Rose and sons, of Johnstown, Pa., have secured absolute control of the Savage Fire Brick Company, one of the biggest fire brick manufacturing concerns in the United States. The deal represents a purchase outright of every share of stock, the company is capitalized at \$500,000, and the purchase price is declared to have been close to par. The old Savage Company was composed of John H. Waters, Scott Dibert, Dr. George W. Wagoner and Samuel B. Waters, all of Johnstown, and H. H. Hill, of Hyndman, Pa. The deal involves, in addition to three splendid factories, about 3,600 acres of land, underlaid with vast deposits of clay and coal. One of the plants is located near Meyersdale, Somerset county, and the others near Hyndman, Bedford county. The purchasers will double the capacity of the plants, and a considerable expenditure will

be made in remodeling the works and installing modern machinery.

The Lawrence Clay Products and Pottery Company, of North Lawrence, Ohio, has been incorporated, with \$10,000 capital stock, by John P. Jones and others.

The plant of the Kleymeyer-Klutey Brick and Tile Company, at Henderson, Ky., was damaged by fire recently to the extent of \$2,000. The loss is partly covered by insurance.

The George W. Washburn Company has been incorporated, with \$36,000, to manufacture and deal in brick at Catskill, N. Y. The incorporators are G. W. Washburn, G. W. Washburn, Jr., of Saugerties, and W. H. Barnes, of New York City.

Taplin-Rice-Clerkin Company, Akron, Ohio, report a very good trade the present season. Mr. P. J. Fish, who has been on the road for the company a goodly part of the summer, has been booking some unusually nice orders, especially in the West.

The Harrisburg Clay Company, of Harrisburg, Pa., has purchased a tract of seventy acres of land containing a deposit of excellent white clay, and will erect a brick plant on same, on which they will expend \$200,000, and which will give employment to more than 100 men. They will turn out a very high grade of face and ornamental brick.

The Emporia Brick and Tile Company, which has been organized at Emporia, Kan., has ordered machinery and expects to have the new plant in operation in a couple of months. The officers of the company are: H. E. Ganse, president; E. R. Peters, vice-president, and W. Wayman, secretary and treasurer. Williams Shaw will be manager of the plant, which is to be located at Saffordville, Kan.

The stockholders of the Hamilton Clay Manufacturing Company, Keokuk, Iowa, met recently and elected officers and directors. The directors for the company are A. W. O'Harra, Henry Plumb, O. C. McCartney, Hugh Elder and J. W. Williams, and the officers are: President, A. W. O'Harra; vice-president, Hugh Elder; secretary, Earl W. Wood; treasurer, George Jones; general superintendent, Henry Plumb, and general salesman, George E. Burner. The company is capitalized at \$75,000, and is organized to manufacture brick and tile, and will soon be running their new plant full handed.

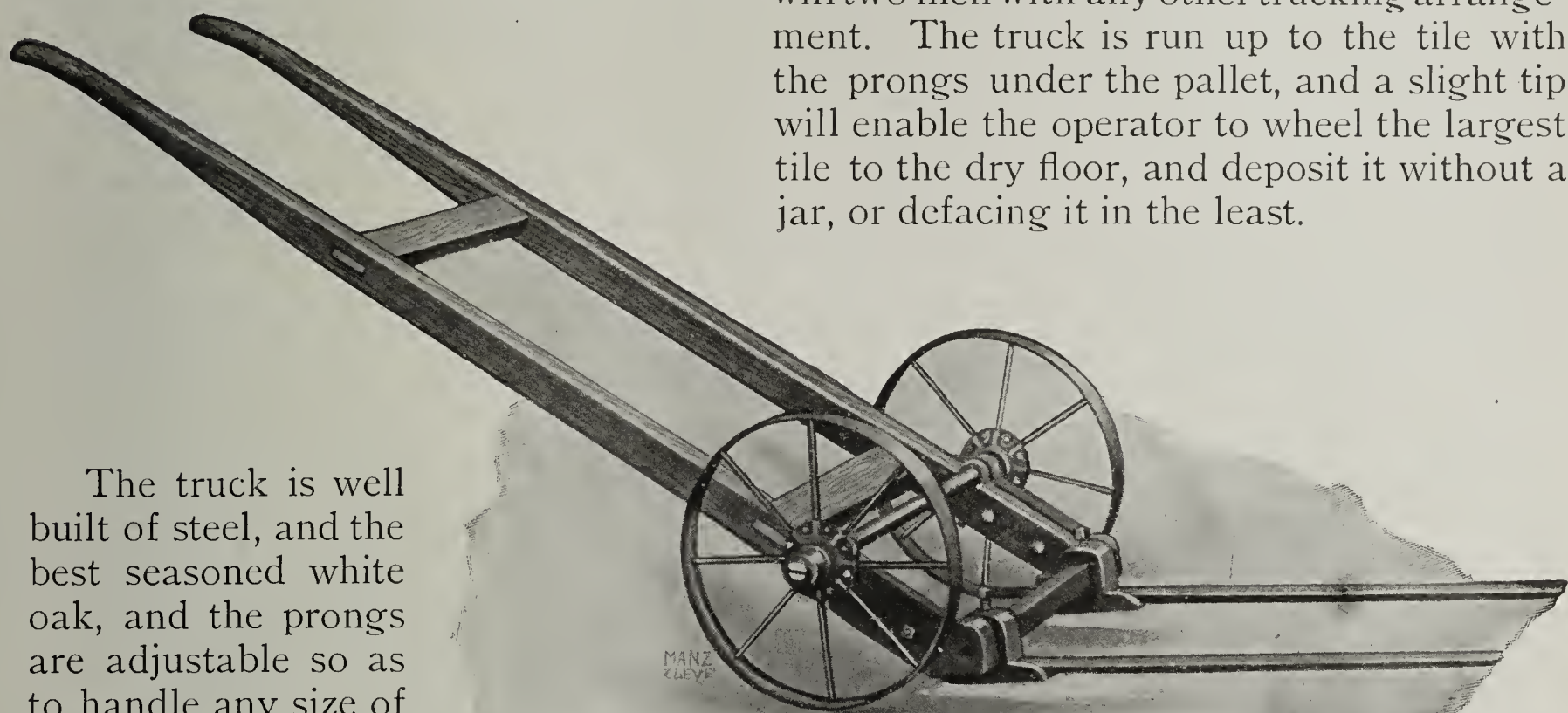
Through the efforts of Walter Colyer, of Albion, Ill., and R. H. Morris, of Brazil, Ind., options were recently obtained on more than two-thirds of the shares of the capital stock of the Albion Vitrified Brick Company, and a deal has been closed by transferring the stock to Roy L. Shattuck, attorney and trustee for a syndicate of leading clayworkers who are purchasing or building a string of clay manufacturing industries. It is not unlikely that the same syndicate may build a large sewer pipe plant at Albion. This deal has no connection with the proposed Albion Shale Brick Company, which is being capitalized at \$200,000. This company hopes to build and get its plant into active operation some time within the coming twelve months. The indications are that in the near future Albion is to become a great clay manufacturing center.

PAYMASTER OF ATLAS BRICK COMPANY MURDERED.

In broad daylight, within three hundred yards of the brick plant, Denton Fowler, paymaster of the Atlas Brick Company, Hudson, N. Y., and his colored driver, George Ragsdale, were attacked and killed by a gang of men who were after the pay roll, amounting to \$5,600, which Mr. Fowler was taking to the yard to pay off the employes. The driver was killed instantly when he resisted the robbers, and Mr. Fowler only lived long enough to give a brief report of the occurrence. It was raining, and the men had the buggy top and the rain curtain up, so that the robbers were on them before they saw them, and they had no time to defend themselves, although Mr. Fowler carried a revolver. The firing was heard by the employes, and when the horse and empty buggy arrived at the brick yard, a few minutes after the assault, the employes rushed down the road, to find one man dead and the other unconscious. The robbers made such haste to get away that they abandoned the suit case containing the money, and it was found in the bushes a little later. Most of the help employed at the brick yard are Italians, and the authorities are of the opinion that some of them are implicated. Pinkerton detectives are at work on the case, and believe the murder the work of amateurs, who were so frightened when they realized what they had done that they did not dare attempt to leave with the money.

TWO PRONGED TILE TRUCK

THIS truck is especially designed for the factory when large tile are made and handled on pallets, and is very useful in connection with our Vertical Attachment for making large tile, and is almost indispensable for the handling of large tile, as one man with this truck can handle more tile, and do it better, and with more ease, than will two men with any other trucking arrangement. The truck is run up to the tile with the prongs under the pallet, and a slight tip will enable the operator to wheel the largest tile to the dry floor, and deposit it without a jar, or defacing it in the least.



The truck is well built of steel, and the best seasoned white oak, and the prongs are adjustable so as to handle any size of tile.



A Strong Serviceable Barrow
(Pin or Roller Bearings)
Made of oak and well braced.



Spring Platform Truck
For carrying green tile or brick. It has two heavy springs, is well built and substantial.

The J. D. FATE CO., Plymouth, Richland Co., Ohio

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



GENERAL BUILDING situation in San Francisco has not changed materially during the past month. The official figures show that the total value of the building permits issued was \$1,525,705, or slightly more than for the month preceding. Singularly enough, the figures of permits issued indicate a considerable falling off from the figures of the same month last year, when the aggregate value of the permits was \$2,186,064, as well as from the month of

August, 1908, when the aggregate value reached \$2,450,000. In most respects, however, the indications are that the building situation is in better shape now than it was a year ago. Nearly all kinds of building materials are firmer, and there is at present no great surplus in any line. This is particularly true in brick and other clay products, for which the demand is now better than it has been for many months.

In the two next largest cities in California, Los Angeles and Oakland, the situation is practically the same as in San Francisco. There is a slight falling off in the value of building permits as compared with the same month last year, but the general situation is in better shape and altogether more healthy. In the north the situation seems to be still better, particularly at Portland, Ore., where the building for August shows a gain of over 150 per cent. as compared with the same month last year. In fact, the official figures for Portland show a greater amount of building authorized during August just closed than in any other one month in the history of the city. The total was for building work to the amount of \$2,555,875.

The situation in common brick is unchanged from last month. The price has made a number of slight fluctuations during the month, but is now practically at the same point that it was a month ago, no advance for the month having been made. Competition is again very keen between the larger manufacturers, but fortunately there is little or no overproduction. San Francisco manufacturers of sewer pipe are still quite generally dissatisfied with the sewer pipe business in this city, and no effort is being made by the dissatisfied houses to get the city's business.

The War Department of the United States Government has just let some large contracts for work to be done on buildings at the Presidio reservation in this city. H. P. Brigham, of this city, secured the contract for the brick for the buildings, but as Mr. Brigham is a contractor, not a manufacturer, he will have to sublet the contract for furnishing the brick. The United Materials Company, sales agents for the Los Angeles Pressed Brick Company and others, secured the contract for the tiling for eight buildings.

The United Materials Company reports having secured a contract for supplying over one hundred squares of tile for the new Hind residence, to be erected in Oakland, Cal., in the near future.

The work of placing new kilns at the works of the Los Angeles Pressed Brick Company, at Richmond, Cal., is now under way.

There is some little friction in Southern California between the sewer pipe manufacturing interests and the manufacturers of brick. Recently a consolidation of all the sewer pipe manufacturing interests has been effected, and brick men are now apprehensive that this strong combination may take up the making of brick. If this results, it will probably lead to the makers of brick going in to the sewer pipe business, and to the dropping back of the sewer pipe business in the south into the chaotic condition that prevailed before the late movement. Previous to the combining of the sewer pipe makers it is alleged that sewer pipe was selling in Los Angeles at or below the cost of production.

The Steiger Terra Cotta and Pottery Works, of San Fran-

cisco, are busy in most all departments. Several large contracts have been secured for terra cotta, and they are also very busy on sewer pipe. The fire brick department has been selling to its capacity right along all summer. A good demand has sprung up for unglazed tile for mantles. This company is furnishing a large quantity of tapestry brick for the new building for the Olympic Club in this city.

San Francisco brickmakers note with some interest that ruffled brick from Los Angeles is beginning to figure quite prominently in this city. It is now appearing in the fronts of a number of apartment houses and other like structures.

N. Clark & Sons are now moving into their new building fronting on Minna and Natoma streets, the building having been finished in the latter part of August. The woodwork in the offices, reception room, sample rooms, etc., is in mahogany. The building has entrances for teams on both streets. The new building of N. Clark & Sons goes far to fix the brick center in this city, being only one block from the building of Gladding, McBean & Co.

Manager Hornsby, of the Porterville Brick Company, of Porterville, Cal., is greatly encouraged by the present outlook. The present daily capacity of the plant is 5,000, but wire-cutting machinery has now been ordered which will increase this to 30,000. A considerable amount of other machinery is also to be installed.

The Remillard Brick Company, of San Jose, Oakland and San Francisco, has sold to Oakland, Cal., a large strip of land at Jefferson and First streets for \$65,000, on which the municipality proposes to erect a quay wall.

The city of Los Angeles is now advertising for bids for 160,000 fire brick.

The new plant of the Mulford-Burke Brick Company, which has just been completed at Newmark in Southern California at a cost of \$150,000, began making vitrified brick about the middle of August. The plant has a capacity for 12,500 vitrified brick per day. It is also equipped to turn out insulators for high voltage power lines. Seven dry and four fire kilns are in operation.

The Simons Brick Company, of Los Angeles, Cal., is preparing to start its plant at Alhambra, Cal.

Plass Brothers, prominent sawmill men of Elgin, Ore., and G. Delaney & Son, of Coffeyville, Kan., are organizing a company to manufacture silica brick near Elgin. The projectors have secured control of a suitable clay deposit near Elgin.

The Little Spokane Water Company, of Spokane, Wash., recently organized for development purposes, is figuring on the establishment of a brick and tile making plant near the town of Milan. C. M. Delamater, F. Paine, J. McGirl and Bruce Blake, all of Spokane, are interested.

Mr. Apperson, who is at the head of a new brickmaking project at Willows, Cal., reports having secured a location and having ordered the necessary machinery. He has begun the erection of some of the required buildings. The plant will be equipped to make common, pressed and white brick and terra cotta.

SUNSET.

MRS. SAGE OPENS STATION TO TEST FIREPROOF MATERIALS.

An experiment station for testing fireproof building materials has been established by Mrs. Russell Sage at Seawaren, N. J., in connection with her "model city." The purpose of this undertaking at Forest Hills, L. I., is to enable men of moderate means to live in comfort, owning their own homes, with gardens and plenty of fresh air. The construction of the "model city" has just been started with two houses of terra cotta.



All persons are warned against INFRINGEMENT.

FISKE & COMPANY, Inc.

BOSTON.

NEW YORK.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Barrett's PAVING PITCH



Gay Street, Columbus, Ohio. Brick Pavement Filled With Barrett's Paving Pitch in 1888.

THE CHOICE OF EXPERTS

The following is a paragraph from a paper presented at the annual meeting of the Iowa Street Railway Association at Sioux City last April, by W. A. Heindle, Superintendent Construction of the Tri-City Railway, Davenport, Ia.

The subject of the paper was "City Track Construction."

"The wood block or brick should be laid upon a sand cushion and the joints filled with paving pitch. In the Davenport track construction, the brick joints were originally poured with cement grout. No allowances were made for expansion, and in some instances the brick has cracked. Repairs are extremely difficult

under these conditions, as the brick will break rather than part at the joint. Pitch jointing has the advantage of being waterproof, provides for expansion, is less noisy than cement grout, and the brick can be torn up and relaid without much damage. With cement grout, several days must elapse to provide for setting, whereas with pitch joints traffic can be turned on within a few hours."

This unbiased statement is as good an advertisement as any we ourselves could write. It only remains to explain that the best pitch is Barrett's Paving Pitch, which is specially prepared with a view to use as a filler for the joints of brick or block city pavements.

Booklet giving further information on request.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

Chicago
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Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
London, Eng.

Written for THE CLAY-WORKER.

BRICK NEWS OF MILWAUKEE AND WISCONSIN.



LOCAL BRICK manufacturers and jobbers and other building supply dealers are looking forward to one of the heaviest fall seasons that has been experienced for several years. This condition is also true in the cities throughout the entire State, where the summer trade has been better than that in Milwaukee.

There has been a tendency among the builders of Wisconsin's metropolis to keep putting off the commencement of building operations on many large contracts, and especially on numerous smaller jobs. The demand for brick and other supplies necessary to complete all of this work before the winter sets in is already being felt, and is the cause of the pleasing expectations which are held by the dealers.

Each week the number of building permits issued at the office of the building inspector is showing a substantial gain over the number of the previous week, and from all indications it is believed that the total amount of building for 1910 will equal the record set during 1909.

Wire cut brick are becoming more popular, and are rapidly supplanting the old pressed brick for use in residences and small flat buildings, which at the present time are in great demand among the renters of Milwaukee.

Under the leadership of C. A. Mullen, superintendent of street construction, and H. E. Briggs, commissioners of public works, the Socialistic administration of Milwaukee has commenced a fight against what they term "a bitulithic trust," of which Warren Brothers are at the head, according to the administration.

The trouble is the result of the desire of the residents of North avenue for a bitulithic pavement, which would cost the city about \$10,000 in royalties, to be paid to Warren Brothers. In a report regarding a bitulithic pavement laid on Wisconsin street Mr. Mullen says:

"I have examined very carefully the so-called 'bitulithic' on Wisconsin street, which is said to be the best section in the city, and which cost \$1.69 per square yard for wearing surface only. I do not believe this pavement is a true 'bitulithic' at all. In fact, it more nearly resembles a street asphalt wearing surface mixture, incorporated therein a certain per cent. of crushed stone, probably not more than 60 per cent.

"Upon going over the records of 'bitulithic' pavements laid in this city, I find that the price has run uniformly \$2.18 per square yard, which includes grading, actual cost about 25 cents; concrete, actual cost not more than 50 cents, and two inches of bituminous wearing surface, actual cost not more than about 50 cents. In other words, I think there has been a gross profit of about \$1 per square yard made in laying this pavement. Of course, we do not know how much of this it was necessary to expend for 'promotion.'"

He continues: "I would further like to call your attention to the fact that a 'bitulithic,' bituminous macadam, tar macadam or any other pavement of this variety is not a suitable one to be laid on North avenue at all, for the reason that this street is going to come in for a considerable amount of heavy trucking. The above pavements are suitable for no other class of roadway than parkways, automobile roads or residential streets with light traffic."

To aid them in their fight against the bitulithic trust the socialists have called on the Barber Asphalt Company for aid, claiming that "it is fair to fight trusts with trusts." As a result of the long delay which has been caused by the controversy, North avenue will not be paved this year. Next year it is thought that asphalt will be used, unless sufficient pressure can be brought upon the commissioners to specify brick.

The plant of the Menomonie Brick Company, of Menomonie, Wis., has been closed for one month. During this time extensive repairs will be made to the equipment.

J. Rasmussen & Sons, of Oshkosh, Wis., have been awarded the contract for laying 26,260 square yards of brick pavement

at Sheboygan, Wis. Their bid for Metropolitan brick was \$1.83 1-3 per yard and for Peebles or Townsend brick \$1.85 per yard. Other bids were presented by John Braun, of Sheboygan, and the Western Improvement Company, of Racine, Wis.

Plans have been completed by the Fond du Lac (Wis.) Pressed Brick Company for extensive improvements to be made to its plant. The work will include the installation of a new wire cut machine having a capacity of between 40,000 and 50,000 brick per day, and the erection of a new kiln. The cost of these improvements will be about \$5,000. At present the company manufactures only brick of the pressed variety, with a daily output of about 20,000. The new machines will triple the capacity of the plant. The new kiln will have a capacity of between four and five hundred thousand brick.

The Langenberg Brick Manufacturing Company, of Stevens Point, Wis., which also operates a plant at Whittlesey, Wis., has been awarded the contract for furnishing the brick to be used in the new Wood county asylum to be erected at Marshfield, Wis.

Racine, Wis., is experiencing a serious brick famine. Building operations were commenced at an unusually early time in the spring, and, with the excellent building weather, there has been no let-up. As fast as the local yards are able to turn out the brick they are taken up by the builders. Some of the contractors who contracted for large amounts during the early season are not meeting with any difficulty, but others are having serious trouble in getting building material.

Deputies were sent to the yards of the Burnham Brick and Supply Company, Milwaukee, recently to prevent trouble that was expected as a result of a small strike by the brickmakers.

The Socialists of Milwaukee are planning to narrow all of the streets in the residence districts and park the space between the sidewalks and the road proper. This is to be done only on streets that do not have car lines. They figure that it will mean a large saving in the cost of pavements and repairs, and will aid in beautifying the city.

F. Ostenfeldt, a pioneer brick manufacturer of Manitowoc, Wis., died recently at his home in that city, aged 81 years.

Plans are already being prepared at Oshkosh, Wis., for street improvement work to be carried on during the summer of 1911. Among the streets which will be paved, in part, at least, are Algoma, Jackson, Thirteenth and Church.

Henry Bachman, a pressman at the plant of the Fond du Lac (Wis.) Pressed Brick Company, narrowly escaped death recently when the roof of the press room collapsed under the weight of several tons of clay. He was at work removing the brick from the presses when he was buried up to the knees in clay, while behind him and between him and the door was a pile several feet high. He was extricated from his position by other workmen.

The first lot of 180,000 brick burned in the new kiln of the Washburn (Wis.) Brick Company have been placed on the market, and are proving excellent sellers. The brick is good color and finish and of apparently splendid quality. T. Skjelbred is manager of the concern.

A. BADGER.

Write for Catalog.

STATE COLLEGE of
CERAMICS

Alfred University,

ALFRED, NEW YORK.

Charles F. Binns, Director.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

RARITAN RIVER brick are selling at \$5.25 to \$5.75, with grades somewhat higher. They are being shipped to New York, Brooklyn, Newark, Jersey City and elsewhere in the Metropolitan district, and the demand is about equal to the offerings. Sales have nearly kept pace with the manufacturers, though occasionally there is some let-up which enables a maker to get something ahead. As a whole, however, the market is in good condition, and sales about balance what is offered. The season along the Raritan river has been a good one, so good, in fact, that it will leave makers with comparatively little for the coming season. Contracts have absorbed a considerable proportion, while there have been other interests which have called for a good many. It may be said that, as a whole, the market for this class of brick was never better, and it promises quite as well now as it has been throughout the summer.

No Hackensack brick are going to New York now. Prices range around \$5.25 to \$5.50, and buyers near home take all there is to offer. In some instances the market has absorbed practically everything offered almost immediately. Building developments in the vicinity of the Hackensack yards has been so brisk during the season that substantially everything made has gone out. Now and then a schooner goes down the river, but in the main everything is taken at home.

The South river brick are moving out in about the usual volume for the season. Of course, it is only a short time when the season will close and all manufacturing will cease. Holders are not especially anxious to go along much faster than they are now. They will finish the arches they have ready to burn and burning, and will probably then cease operations for the season. They have received a reasonably good trade, and their prices have ranged around the usual figure all the season so far.

E. M. Houghtaling, the partner of Mayor H. Otto Witt-penn in the face brick business at Jersey City, says regarding the fall outlook:

"I did not expect improvement so soon, but I believe that

builders will go ahead with their plans this autumn. In the first place the money-lending companies are loosening up a little in the Washington Heights section, a part of Jersey City, and the factory development in the suburbs, particularly Jersey City, Newark and Hoboken, is bound to be carried on this fall. Then there was the recent fire in Jersey City, which will mean almost \$1,000,000 in reconstruction work, and this will require large quantities of brick. This talk about over-production of apartment houses is nonsense. Modern advertising methods have rented 80 per cent. of these even before the rental season is near, and it is impossible to get moderate-priced quarters below One-hundred-and-forty-fifth street on the West Side of New York to-day. This will mean that persons employed in the lower part of New York will look to Newark and Jersey City, with their rapid transit facilities, for their homes, and that, of course, will carry with it a good deal of building development which is not now in sight.

"Another reason why building will go ahead this fall is because the money situation is easier. There is little to fear from a business standpoint in the political situation. If the complexion of the next House changes, it will exert very little influence upon the business conditions, because the Democrats are less radical than they were, and crops promise to come up to expectations in all sections of the country.

"Building development is bound to be heavy in the Pennsylvania sections of both New York and Long Island City. According to one construction company's estimates \$3,000,000 in improvements is projected for those sections. Much of this will go ahead this fall. That makes another important mart for brick.

"Common brick is showing a somewhat brisker demand of late, and sales have increased perceptibly. Face brick is also doing better. We have little to complain about in the way our business has developed during the season."

A big demand developed during the season for hollow tile for construction work all through the New Jersey suburbs, but this was felt most largely in Newark, Cranford and Montclair. Many buildings have been constructed in all those places of hollow tiles. Much brick has been used there also, but hollow tile construction has become very popular in all those localities. It is distancing cement as a structural material.

A. L. B.

FOR SALE, WANTED, ETC.

WANTED — Experienced off-bearers. Give references.

HYDRAULIC PRESS BRICK CO.,
9 1 d Brazil, Ind.

WANTED—Position as superintendent in shale brick plant by a man who understands dry press and stiff mud machinery, setting and burning. Address

BOX 9, H. J. J.,
9 1 c Care Clay-Worker.

WANTED.

A man who thoroughly understands the manufacture of hollow tile fireproofing to act as foreman of a plant where fire brick is also made. A good opening for the right man. Address

BOX 9, JONES,
9 1 d Care Clay-Worker.

WANTED.

In the rapidly growing city of Mena, Ark., a brick manufacturing plant. Good clay abundant and fuel cheap and convenient. Address for further information,

G. B. WOOD,
General Agent, K. C. S. Ry.,
6 6 dm Mena, Ark.

TO LEASE.

Brick plant which will make anything made from clay, coke oven tile, shingles and all kinds of fancy brick. Situated on the C. & O. railroad one mile above Charleston, W. Va. Address

BOX 7, W. VA.,
7 3 cm Care Clay-Worker.

WANTED.

Two paving brick setters. Address, giving references,

MURPHYSBORO PAVING BRICK
COMPANY,
9 1 d Murphysboro, Ill.

FOR SALE—Automatic brick cutting machine, also flower pot machine. Both nearly new. Will sell at one-fifth cost. Address

FINCH, BOX 40,
9 1 cm South Park, Ohio.

WANTED—Man with means to investigate excellent proposition in clay manufacturing in East. All experience furnished.

MAX A. KAISER,
1920 Parrish St.,
9 1 1pm Philadelphia, Pa.

FOR SALE—In first class condition. Centennial Brick Machine with lubricating die, extra front and dies for hollow ware and drain tile.

ALFRED CLAY CO.,
7 3 d Alfred, N. Y.

WANTED.

A red silica rock sand that will not flux under twenty-five (25) hundred degrees of heat. Also want a fine loam sand for sanding building brick that will burn cherry red or salmon color at twenty-three (23) hundred degrees of heat.

Any person knowing of such sand or having same for sale will kindly communicate with the

C. P. MAYER BRICK COMPANY,
7 1 d 906 Park Bldg., Pittsburg, Pa.

FOR SALE.

Fifty acres of blue iron shale clay land. Railroad runs through land. Small plant in operation near by. A good opportunity to install another factory. For full particulars write

H. W. ERICKSON,
315 N. Washington St.,
9 1 1c Aberdeen, So. Dak.

WANTED.

Superintendent for brick plant. Must be familiar with down-draft kilns and the working of shale. Address, stating age, experience, references and salary expected,

BOX 9, WESTERN,
9 1 d Care Clay-Worker.

FOR SALE.

Power Plant complete—150 H. P. 72-in. x 16 ft. Atlas horizontal tubular boiler.

14-in. x 20-in. Brownell automatic engine.

18-in. belt, pipe fittings and all accessories.

Dry Pan—9-ft. Eagle pan with manganese steel screen plates.

Hoisting Engine—9-in. x 12-in. Ellison with drum and cable.

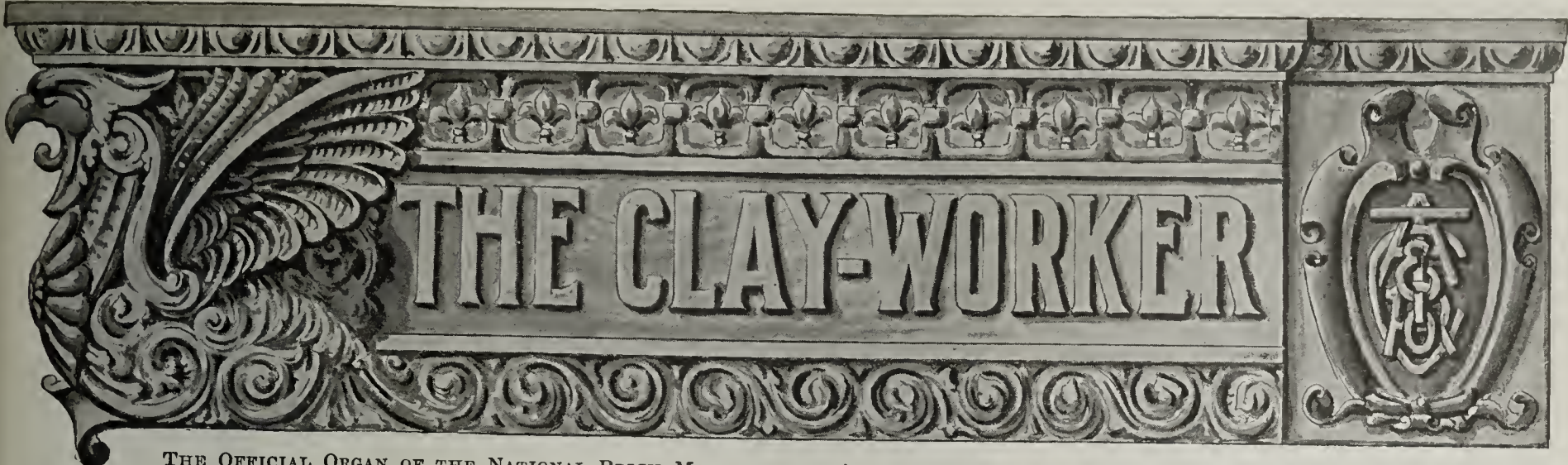
35-ft. Elevator—14-in. belt with 54 12-in. x 16-in. malleable iron cups.

60-ft. Link belt conveyor.

No. 6 Pulsometer pump.

All machinery in first-class working condition. May be seen in operation or in working position. For sale only because of changes made in the methods of operating the plant.

MT. VERNON PRESS BRICK CO.,
9 1 d Mt. Vernon, Ill.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LIV.

INDIANAPOLIS, IND., OCTOBER, 1910.

No 4.

Written for THE CLAY-WORKER.

HOW ART CAN BE EXPRESSED IN ATTRACTIVE BRICK BUILDINGS.

Beautiful Brickwork Chief Essential in the Construction of the Carnegie Libraries in Cleveland, Ohio.

AS A PROMOTER of architectural excellence and economy in erection and maintenance brick has again proven itself pre-eminent. In the building of public libraries in the city of Cleveland, ten of which have been built in the

been opened upon the slightest pretext when money was needed for a building in some new and rapidly expanding portion of the city.

The designs of all the buildings have been made different, and consequently the problems which have had to be faced and overcome have been varied. Libraries might have been duplicated, as they are widely separated, but it was felt that each locality represented a different spirit and that that locality should be given something which suited it.

To this end different architects have been engaged for the most part for the erection of the various buildings. Different



CLEVELAND'S WEST SIDE LIBRARY.

Pronounced by Library Experts to be the Finest Small Library Ever Erected.

past ten years and four others of which are under way, brick has been the material utilized. Libraries are perhaps a class of public buildings in which it can be used to the most excellent advantage, for it exudes the warm personality of a clever architect and presents a building which is artistic, yet not unreasonably expensive.

Cleveland has been fortunate in the past decade in reaching the ear and the purse of Andrew Carnegie. Much of the money needed for the erection of the various libraries has been donated by him, and he holds such a high opinion of the Cleveland board's ability to spend his cash that his purse has

classes of materials have been utilized. It has been planned to erect the buildings on a purely commercial basis, from the standpoint of cost, and also from an artistic standpoint, where use and utility are concerned. So well has the board succeeded that Mr. Carnegie has expressed the opinion that in no city or town throughout the world, where he has given money for library purposes, has the money been spent to such advantage.

The new West Side Library, which has just been completed and occupied, is said by library experts to be the finest small library building in the world. It cost about \$83,000 to

build, is triangular in shape, and sets in the center of a park of the same shape. It is of a warm brown-red colored brick and is elaborately trimmed with terra cotta. This latter is one of the finest examples of this material to be found in the Middle West. Eight large columns which support the front cornice are of terra cotta, while the cornice around the entire building and all the other trim is also of the same material. In the basement is a large auditorium capable of seating 1,000 persons.

In a number of the libraries interesting brick mantles have been installed in connection with quarters reserved for children. In connection with these mantles and as an element of decoration, rows of beautifully executed tiles have been used for ornamental purposes. These picture tiles are in series form, representing stories which are related to the youngsters by instructors at story sessions held each week. There are now five or six of these sets, which are interchangeable. About every season the tile are taken out and reset in connection with another library building. Then the story they represent is told again to a new audience of children. Thus is the ceramic art proving a boon to the little ones of Cleveland in a very practical manner.

W. B. Brett, Cleveland librarian, who represents the board in its relations with the various architects and to whom is given the task of directing the general design, is warmly in favor of the use of brick for library buildings. He says it is economical and can be adapted to a greater variety of purposes than almost any other material. Mr. Brett is one of the foremost librarians of the country, and has had experience beyond that of most others in the erection of this type of building, for he has supervised the erection of all the new buildings erected in Cleveland in the last decade.

It is because the books are taken right to the homes of the people that the Cleveland library system has made such a remarkable showing. It now issues more books to its people than any other city in America, Greater New York only excepted. Instead of building great stone tombs, in which the books are buried, the Cleveland idea has been to build attractive brick structures in the residential quarters, all over the city, where the books can be actually used by those for whom they are intended.

It looks like, even though there is more or less wrangling yet, that the powers that be and the railroads are getting on better terms and coming to understand each other better, so that there may be less loggerheading in the future, more attention paid to the needs of the public, and quicker service in the way of passing on and adjudicating complaints and freight rates.



WOODLAND AVENUE LIBRARY.

A Very Attractive Structure in Which Some Interesting Brick Work May be Seen.



ENTRANCE TO WOODLAND AVENUE LIBRARY.

One of Many of the Carnegie Libraries Built in Cleveland.



BROADWAY PUBLIC LIBRARY.
A Ten-Sided Building With a Large Auditorium.



MILES PARK LIBRARY.
The Entrance is the Most Classic of All the Libraries.

THE BRICK HOUSE SAFE FROM FIRE.

AS INSURANCE men use the word "risk" it is merely a cold-blooded business term. We will consider that phase of the subject later.

The man who owns a house and lives in it uses the word in the original sense. Safety must come before everything else. As fire is practically the only destructive agency to be feared, the question becomes: Is the house safe from fire?

Is it made of such material that wife and children may be smothered in their beds almost before they wake? Or is it built so as to give the maximum of security? All of us have to live in houses, even if we don't own our own, and these are questions which touch every man.

Nor are they questions to answer which need cause much puzzling. Expert opinion is agreed on two facts: First, that a frame house is the most easily and quickly burned; second, that a brick house approaches more closely than any other the "absolutely fire-proof" ideal.

Brick is made by fire. In the process of manufacture it is subjected to a heat of at least 2,000 degrees Fahrenheit. It cannot burn. If brick work ever gives way it is due to some powerful mechanical force—falling timbers, or explosion, or earthquake—never to fire.

The record of every great conflagration is filled with examples of the indestructibility of brick. In Chicago, in Baltimore, in San Francisco, brick stood the test. Hear the words of Major John Stephen Sewell, United States Army, one of the government experts sent out to investigate and report upon the San Francisco fire. After spending days among the ruins, he said:

"A conflagration never yields reliable comparative results, but from such comparative results as are available, I think there is no question that *the best fire-resisting material available at the present time is the right kind of burned clay.*"

The great conflagration hazard present in every American city is due to the use of wood in building construction. This is not a theory; it is a fact, stated upon the authority of the National Fire Protection Association. Do you want this hazard to apply to your house?

In America the fire loss in 1907 was \$2.51 per capita. In Europe it was 48 cents. Here is the answer: America uses 500 feet of lumber per capita, Europe 60 feet. Europe uses brick.

Even Russia, the country we are accustomed to speak of as half civilized, has a per capita loss less than half of ours. If ours had been the same as Russia's in 1907, we would have saved \$116,000,000 in that one year! Russia uses brick.

Suppose that your neighbor has a frame house. If it catches fire in the

dead of night, before you are awake, your own house, if it is frame, will be ablaze. And before the fire engine can get there, it will be a ruin. But, if you live within brick walls, you are safe. *A pail of water with brick is equal to a whole fire department with wood.*

You regret your neighbor's misfortune, but is there any reason why your house should be burned along with his? That is expensive sympathy. Rather would you be able to offer a shelter to his frightened and shivering family.

As the dweller in a brick house is protected from without, so is he protected inside. The experts tell us that fires in homes start most often from flues or electric wires in the walls. If the walls are brick, the defective flue or the "short circuit" can do no damage.

Fire is spread by drafts. There are fewer drafts in a house

your house is brick, you "play trumps." You have given the one answer that is sure to be satisfactory.

We have quoted high authority upon the value of brick as a fire-resisting substance. Expert endorsement, though, is merely the result of experience, and any one of us can learn, first-hand, of the actual achievements of brick. Ask any architect or contractor, ask any insurance man, ask your friend who lives in a brick house. They will all tell you that *brick has won out.*

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NEW SCHOOL BUILDING AT PAWLING.

The new private school building at Pawling, Putnam county, New York, is an example of brick and hollow tile in combination. City men who travel for pleasure or business



THE MILES PARK LIBRARY.

One of the Cleveland Carnegie Free Library Buildings.

of brick than in any other kind. If fire starts there at all, it starts in the open, where it is quickly detected and can be quickly put out. It cannot gain headway, as in a frame house, hidden in the wall; nor in the floor, because the spaces between the ends of the floor beams are filled in with brick, and there are no drafts.

We now come to the business meaning of "risk." The whole story of brick versus wood condensed, is simply this: Generally speaking, the insurance rates on brick buildings are not much more than one-half as high as on wooden buildings.

The vicissitudes of fortune have compelled many a man to sell the house that he built to live in. Here again enters the question of "risk." One of the first things a purchaser wants to know about is fire protection. If you tell him that

through the surrounding country are surprised to observe how large a proportion of the current construction is with masons' materials. The walls of this building have a brick facing, but are backed up with ten, twelve and eight-inch Natco hollow tile, and are not furred.

Every tenth course of brick is tied into the wall with a full header, which is backed up with a row of hollow block. All other courses have bats or half headers butting up against the block. This method of construction ties the tile and the brick in an absolutely rigid manner.

The foundations are concrete and stone, the floors wood and the roof slate. The building measures 40 feet by 314, and has steam heat and electricity throughout.

The building is an evidence of the large amount of construction in hand in the cities and towns around New York, and more particularly of the substantial character of that work. Frame construction has by no means ceased, but masonry in its various forms is having a decided "uplift."—Ex-

TILE DRAINAGE IN SOUTH CAROLINA.*

WITH proper drainage, the lower part of South Carolina can be developed to a high degree of profitable agriculture. In the counties of Hampton, Beaufort, Colleton, Dorchester, Clarendon, Berkeley, Williamsburg, Georgetown and Horry, together with adjoining counties where now thousands of acres are filled with swamps and stagnant water that breed mosquitoes and give rise to malaria, chills and pestilential diseases, the lands can be made to produce magnificent crops and return excellent profits. Other States and other countries have had the same problem, and wherever the drainage has been completed a profitable system of agriculture has been developed. Holland and Belgium were once

east central Illinois to Chicago in 1844, driving three yoke of oxen to a load of grain. On the way he paid his expenses by pulling other teamsters out of the mud. My father, when a boy ten years of age, during war times, herded two hundred head of cattle on the prairie and drove them to water in ponds midside to his horse. Countless myriads of mosquitoes brooded and swarmed over the land, carrying with them pestilence and disease. Ague, chills and malaria abounded without restriction.

The people of this section soon began to drain the land. No one before had ever attempted a similar problem. There was no precedent to follow and no knowledge of the best methods of procedure. Small open ditches were never used. The corn belt man has no patience with short rows or small and irregular fields. He demanded first of all a system of



ONE OF THE CARNEGIE LIBRARY FIREPLACES.

The Tiles Illustrate a Story Which is Often Related to the Children Patrons.

an expanse of swamps, but by diking against the sea and establishing a system of drainage canals the land has been reclaimed and made to support a greater population per square mile than in any other country in the world.

The great corn belt of central Illinois was once a vast prairie, full of sloughs and ponds, hardly fit for habitation, and all but the higher spots worthless for agricultural purposes. In wet seasons crops were almost failures, and had it not been for the live stock kept upon the prairies the people could not have lived. At certain seasons of the year roads were impassable. My grandfather made his first trip from

drainage that would not be a hindrance to cultivation; he wanted to plow over the drains or not at all. The first attempts were necessarily crude. Two logs were placed side by side in the bottom of the ditch and a third placed on top of these and covered over with dirt. This provided a cavity through which the water would drain, but the ditches would become clogged or the logs decay, so, although some good results were obtained, the method was far from satisfactory.

Then followed what was called the mole ditch. An iron ball the size of one's double fist was fastened on the end of a steel bar and pulled through the ground at a depth of from two to three feet by means of a capstan. This made a mole ditch three or four inches in diameter and furnished an efficient drainage until it became clogged either by the dirt caving in or by the burrowing of some animal. Then the

*Written for the South Carolina Department of Agriculture by A. G. Smith, Scientific Assistant, Office of Farm Management, U. S. Bureau of Plant Industry.

water would collect at places, seep out and form a boggy spot unfit for cultivation.

After years of such attempts with unsatisfactory results, the plan of using tiling burned from clay was begun. The tile varied in size from three inches to one foot in diameter, and were usually one foot in length. From the very first this system was a success. The ditches were dug from three to three and one-half feet deep, and the tile laid in the bottom and covered over with dirt. The water would soak through the cracks, between the tile, and be drained off. Spades and shovels for digging the ditches in the most economical manner were soon invented, and small tile factories sprang up all over the country, making a supply of tile accessible to every farmer. The owner of the land usually hauled his own tile from the factory, and put them in the ground with his own hands. This was done in the spring of the year, when the ground was wet, before the land could be plowed or the crops could be planted. The wettest places were drained first. No surveyor or civil engineer was employed, the water running down the ditches as they were dug being evidence that there was plenty of fall to keep the tile clean and carry off the water.

The Foundation for Good Land Drainage.

In the more rolling lands natural water courses which furnished an outlet for the tile were already present, but in the flat lands it was found that many of the outlets of the drains were insufficient. Either they were too small and did not carry off the surface water quickly enough, or they were not deep enough to allow the outlet of the drains to be started so as to provide sufficient fall. Consequently, it was necessary to make large open ditches into which the tile drains could run. These were frequently miles in length and often drained several square miles of territory. No one farmer could construct one of these outlets, so drainage laws were enacted and drainage districts formed. The owners of two-thirds of all the lands drained by outlets could sign a petition, go before a court, and have formed what is called a drainage commission. These commissioners, who must reside outside of the district, were appointed by the court, and these had power to employ an attorney and an engineer, construct the outlet or drainage ditch, and assess the lands drained by the ditch so much per acre for its construction. Many lateral ditches from the main outlet were constructed by the individual owners of land. These drainage ditches usually cost the landowner from four to twelve dollars per acre. They varied in size from eight to thirty feet in width and five to twelve feet in depth. They varied in length from two to twenty-five miles and usually from three to three hundred square miles of land. They were frequently excavated with horses and scrapers, but the larger ones were made with steam dredges. These large ditches carried off the surface water after heavy rains, and furnished the water courses into which the underground drains could empty.

The result of all this is that where before the land was filled with ponds and bogs it is now traversed with large outlet ditches into which flow thousands of underground drains. These carry the water away and make what was once the ponds and the sloughs the most productive land. Stagnant water is found no more. Chills and fever are unknown. Instead of breeding countless myriads of mosquitoes, the land now teems with fertility, supporting in health and in comfort the richest, most prosperous and best educated agricultural people in the world. In the summer time vast fields of corn, oats, wheat, timothy, clover and pastures cover the farms, among which are dotted magnificent homes, school houses, churches and villages, making the landscape a picture of beauty never to be forgotten.

The problem of drainage in lower South Carolina is practically the same as that of central Illinois. It is more difficult, in that much of the land is timbered, making it not so easily brought under cultivation. It is less difficult in that people of central Illinois were compelled to develop a system of drainage, while the people of South Carolina can profit by what has already been done. Once, however, the section is drained, the mosquitoes destroyed and the malaria driven out, and the country made better fit for habitation, a highly successful and profitable agriculture can be developed.

In beginning tile drainage, the first thing to be considered is the supply of tile. As far as it can be learned, there is not

a tile factory in the State that manufactures drain tile. The supply must come from Tennessee, North Carolina and Georgia, and the distance is so great and the freight rates so high that the cost of the tile must necessarily be excessive. Four-inch tile laid down at the station will cost at least \$26 per thousand in lower South Carolina, whereas in the corn belt of Illinois they cost half that price, or \$13 per thousand. At the same time a far better grade of tile was secured in Illinois than can be secured in South Carolina.

The Need of Tile Factories.

Furthermore, it is almost impossible to buy tile unless one takes a whole carload. This makes it difficult for the man of small means to do any tile drainage. Factories should be built to manufacture the tile in these counties where drainage is so badly needed. Any clay from which brick can be made is fit for the making of drain tile—in fact, drain tile can be made from clay that is unfit for making brick. It should be a small problem for many of the brick factories now operating in the lower part of the State, by installing the proper molds, to manufacture tile with the facilities they already have on hand. Then it would be possible for any farmer to go to these factories, in many cases with his own wagon and team, and haul his tile home and put it in the ground at a minimum of expense. The man with small means who could only drain part of his farm at a time would be able to secure tile and put them in as fast as he was able. In fact, this is the way most of the tile in Illinois were put in. The number he put in, however, did not depend so much on his financial condition as it did his available time in the spring. The tile would be hauled in the winter, but the ground would not thaw out so a spade could be pushed through it until early in March. Then, as soon as the ground became dry enough, it was necessary for the farmer to begin preparation for his crops, and the only other time he would have would be wet days when he could not plow in the fields. There should be no reason why a tile factory, properly managed, would not be a profitable proposition to the owner and a great benefit to the farmers in any of the coastal counties.

The Tools Needed.

The next step in tile drainage is to secure the proper tools. It is no more difficult to dig a ditch for a tile drain than it is to dig one of the open ditches that are commonly used for drainage purposes, provided, however, one knows how. By using the flat spade, one that is, say, twelve inches long and eight or nine inches wide, it is a slow and expensive proposition. The Illinois farmers soon found this to be true, and devised a spade which has entirely supplanted the kind that is now used in South Carolina. The proper kind of spade is one that is about six inches wide and from sixteen to twenty-two inches long, with a handle much like the common spade. It has been thought that the clay in South Carolina was so hard that the regular tile spade could not be used to good advantage. Last fall, however, a number were tried in laying tile drainage in Marion county. A gang of fifteen negroes were doing the work. Spades were ordered as an experiment, not knowing whether they would be satisfactory under the existing conditions. At first only four were purchased. It was impossible to find these in South Carolina, so it was necessary to send out of the State for them. Strange to say, no sooner had the negroes tried them than they began quarreling among themselves as to which should use them. It was found that with these spades 50 per cent. more ditches could be dug in the same length of time than with the ones that were commonly used. Where a man had been digging 100 feet a day before, he was able to dig 150 feet, thus doing with the same amount of labor 50 per cent. more work and with a great deal more satisfaction. Consequently, a number of other spades were ordered, and all were found satisfactory.

The ordinary shovel commonly used should also be in a set of drainage tools. It is needed for throwing out the crumbs from the ditches after the first spade. Then one should have a drain cleaner. This is a kind of scoop that is pulled rather than pushed, in taking out the dirt, and is used by the man who digs the bottom of the ditch. He will dig for six or seven feet, then lay down his spade, pick up the drain cleaner, and, without moving from the place in which he is standing, throw out the crumbs and prepare the bottom of the ditch for laying

the tile. A tile hook is also a necessity. This can easily be made by taking a small pole or an old pitchfork handle and fastening a bent rod on it so that the tile can be lifted by it. With a tile hook one can stand on the bank of the ditch and lay tile in the bottom without any serious difficulty.

The Outlets.

After deciding upon the land to be drained, the farmer should next consider the outlet. This would have been considered before the supply of tile and tools but for the fact that in many places in the lower section of South Carolina many of the fields already have sufficient outlets for tile drains. If a large area is to be drained, small tiles can frequently be run into a large tile drain which empties into an open ditch. Some judgment will have to be used in this matter, however. The open ditch used as an outlet for a system of tile drainage should be of sufficient depth to allow a drain to be started deep enough to provide plenty of fall, and should be of sufficient size to carry away the water that drains into it. It should be as nearly straight as possible, so the water will flow freely through it. It should have all the fall within reason that can possibly be given it. If it does not have plenty of fall, or if sand and dirt are liable to wash into it, holes should be dug in the bottom of it so that sand and dirt will be deposited in these holes and can be thrown out when they are filled up. This will prevent the filling of the ditch. If this kind of an outlet is not already provided, then it should be constructed as in Illinois, either with horses and scrapers or with a dredging machine. Sometimes, however, if the ditch is small, it may be constructed more economically and to better advantage by hand with spades and shovels.

Location of the Drains.

In locating drains, if the farmer is a novice in the business he should employ a competent drainage engineer. Sometimes civil engineers who have had experience in laying sewerage and water works systems for cities can do the work, but it is to be regretted that many of these engineers never have had the proper training and experience to do practical farm drainage in the most economical manner. However, these people are the best that can be secured, and with some experience can do the work satisfactorily. Lands that should be drained are those that are too wet for proper cultivation and on which the crops suffer in wet seasons. Every part of a comparatively level field should be uniformly dry, so that after a rain one can plow from one end of the field to the other and not be hindered by wet places. Drainage may not be profitable on the higher grounds, although it is sometimes beneficial, but the wet places that are boggy, unfit for cultivation, and are liable to crop failure, when once drained are usually found to produce the best crops.

After deciding upon the location of the drains, the tile, as a rule, should be laid on the fields before the digging is begun, as it is much more easily done at this time than any other. If the ground is too wet to haul a load over, however, it may be necessary to dig the ditches first so as to dry the ground, but under ordinary circumstances the ditches would be in the way for hauling, and furthermore the tile should be on hand to lay when needed. The drains should be placed from 80 to 150 feet apart, the distance depending upon the conditions under which they are laid.

The Depth of Tile.

The depth of tile should average from three to four feet, depending upon the character of the soil and the land to be drained. If the tile are laid deeper than four feet the surface water cannot get down to them quickly enough, and if they are shallower than this they will not drain as wide a strip as they should. In going through high places in order to reach low places, however, it is necessary, sometimes, to put the tile deeper than this through the high places, but usually such land does not need drainage, and the tile are useful only as an outlet for the tile in the wetter places. Also, in some exceptionally wet places, it may be necessary to lay them shallower, so as to carry the surface water away quickly.

Generally drains should be given as much fall as the conditions will permit. Ordinarily two inches in one hundred feet should be the minimum, but frequently conditions will arise where less must be accepted, and then careful leveling should be done to secure the largest fall available.

The proper size of the tile can only be definitely stated when the detailed conditions under which the drain is to work are known. They should be large enough to remove in twenty-four to forty-eight hours the excess water of the heaviest rains likely to occur. When single drains are laid here and there in irregular order to drain low places, larger tile are required than where a whole area is systematically drained, because in the former cases a larger per cent. of surface water from surrounding higher lands will flow upon the low areas under which the drains are laid. The greater the fall the smaller the tile may be, doubling the grade increasing the carrying capacity nearly one-third. It is seldom advisable to use tile smaller than three inches in diameter, because a little variation above or below a true grade will fill them with sediment. The size of drains must vary with the area they are to drain, with their fall and their length. In the Middle West, where tile are laid three feet or more deep, and with a fall not less than three inches to the hundred feet, a three-inch tile will drain five acres, a four-inch twelve acres, a five-inch twenty acres, a six-inch forty acres and a seven-inch sixty acres. In South Carolina, however, where the rainfall is one-third to one-half greater, smaller areas should be allowed accordingly.

Laying the Tile.

After the ditch is dug and the bottom made, the tile should be laid as carefully as possible so there will be no more space between them than is necessary. Then a little dirt from near the bottom should be caved on the tile so as to hold them in place. This can be done quickly and easily with one of the regular tile spades. The filling of the ditch is an easy matter. Sometimes it is done by using a wooden scraper with handles by which, with the team on the opposite side, the dirt is hauled into the ditch. The quickest and most economical method, however, is to attach an ordinary two-horse walking plow to a log beam with a horse hitched at each end; then by driving one horse on each side of the ditch the dirt can be plowed in. Three men, by this method, should easily fill a mile of ordinary ditches in a day. If the ground is not left smooth, it may be gone over with a road grader or a split log drag to level it down.

The cost of the tile drainage depends upon a number of things. Under present conditions, with the necessity of buying the tile out of the State, using improper tools and unwieldy methods, after the outlets have been secured, the cost will vary from fifteen to twenty-five dollars per acre. If, however, the tile were made somewhere near the farm, and modern methods were used in digging the ditch, laying the tile and filling the ditch, and no trouble were encountered with stumps, it could be done, exclusive of the cost of making the outlet, for from nine to twelve dollars per acre. In fact, if proper outlets were constructed, and proper methods were used, it is a safe proposition to say that the entire lower part of South Carolina could be drained for nine dollars per acre.

Benefits of Tile Drainage.

The benefits of tile drainage are many. The water runs through the pores of the soil, enters the drains through the cracks between the tile, and is carried away. Tile can be put in many of the open drains now used, be covered over, and instead of having a ditch which is a hindrance to the use of improved machinery, one that needs cleaning out and the brush cut off the banks every year, it could be plowed over and a good crop grown, where otherwise there would be not only an expense, but a nuisance. Tile drainage decreases risk of crop failure. It removes the water so that farm lands soon after rains become fit for cultivation. People who have been prevented by wet weather from plowing a cotton crop for many days can appreciate what this means. Drained lands as a rule will stand dry weather better than undrained lands of a similar nature. This is due to the fact that the water in the soil forces the roots to develop nearer the surface in moist soil than they would in drained land where they develop deep down in the ground. Drainage opens up for cultivation the most fertile lands—in fact, the additional yields of crops on drained land frequently pay all cost of drainage in one or two years' time. Drainage removes stagnant water, thus preventing the breeding of mosquitoes and the prevalence of chills and fever.

This has not been intended as a technical address on tile

drainage, but rather to give the economic possibilities and the general methods involved. Beyond any possible doubt the time will come, if it is not already at hand, when the people of lower South Carolina will take up tile drainage seriously and effectively. Some time ago an experiment was made in Marion county. Several hundred yards of tile were used to drain a low piece of land so wet that it had never been known to grow a crop of corn or cotton. The results were so satisfactory that last fall three and one-half miles more were put in. Last winter, when water stood in other people's fields for weeks, where the ground was tiled the water was carried off and ready for the plow long before anything could be done in the undrained fields. As a result of this demonstration nine car-loads of other tile, enough to put in seven miles, have either already been laid or ordered on adjacent farms.

Recently the Office of Irrigation and Drainage of the United States Department of Agriculture constructed an extensive drainage system on the farm of the South Carolina Experiment Station near Summerville. These lands had previously been considered unfit for agricultural purposes—in fact, the adjoining farms had once been colonized with settlers from Canada, practically all of whom, after an ineffectual attempt at farming, went back to their former homes, because the lands were too wet and unhealthy for cultivation and habitation. The first year after the drainage system was put in, on land that had previously been regarded as worthless, heavy crops of corn, cotton and cowpeas were grown, and the foundation laid for the development of a fertile and profitable farm.

When once the benefits of drainage are seen, as it can be seen on these farms and other parts of the country, there can be no question but others will follow the example and drain their lands. The people of this State should profit by these experiences, build factories, manufacture the tile at home, drain the lands, and make of lower South Carolina a section better fit for habitation and the garden spot which it is capable of being made.

Increased Exportation of German Pottery.—A much better condition in the exportation of pottery can be noticed for the present year. Last year the business was far less than the year before, and the total tonnage exported diminished from 1,011,988 tons to 927,450 tons. As, however, the pottery prices were higher in 1909 than in 1908, the amount exported is 840,000 marks more in money, in spite of the fact that the tonnage was lower. This year every condition has been better, the prices are higher and the amount exported is very much higher. In tonnage the exportation increased 16 per cent., while in value the amount increased nearly 19 per cent. The greater part of this increase was in March and April. If the exports of January, 1909 and 1910, which are nearly alike, are taken as 100, then the figures show for comparison that February increased to 107.5, March to 156.8 and April to 197.8, so that the exportation in the month of April was nearly twice as much as the previous year.—Deut. Topf & Z. Z. No. 54, 1910.

PERMANENT IMPROVEMENT OF HIGHWAYS.

Importance of Proper Construction.*



TO THE GENTLEMEN who represent various municipalities which in the past have used, and in the future expect to use, vitrified brick in the improvement of streets, I wish to bear a message arguing in favor of the best known construction in the building of such streets. There may be a few among you with whom it is unnecessary to plead this cause. I know, however, they are but few, and it is unnecessary to plead with such, because of their own motion they will continue to properly construct brick streets, since they cannot but appreciate the worth of such a course. To you who represent the cities that never used vitrified brick just a word of caution may not be amiss. Do not use them at all until you have first posted yourself as to the most approved methods of building them. In addressing that class of city representatives who have had experience in building brick streets and who in such work have not conformed to some of the necessary details to



GOOD CONSTRUCTION: This is a Perfectly Smooth Pavement Which Has Been Down Twelve Years, and is Subject to Fairly Heavy Traffic. It Was Laid Right, According to N. P. B. M. A. Specifications, and Shows Scarcely Any Wear at All.

insure the quality of the street, and yet who have not had the opportunity of examining a brick street, in the construction of which all of the essential details of a high-class street have been followed, I think I fully appreciate my position in this attempt. We speak, we act, we are convinced in a very great measure from our individual viewpoint.

The city of Monroe, Mich., has had brick pavements in some of her streets for from eight to sixteen years; they have never been repaired. Their condition does not call for repairs. The people of that little city believe that those are good brick streets. The officials of that city really thought so, and it does speak well for brick streets to say that that city has had them in use during that length of time and that they have not been subject to a maintenance charge, and that they will likely last, in good condition, so they say, for several years to come, but officials of that city, together with a few property owners—nine in number—upon being told that there was a vast difference, from every viewpoint of requirement, constituting a high class and first class brick

*Read before the League of American Municipalities, St. Paul, Minn., Aug. 23, 1910, by W. P. Blair, Indianapolis.

street as compared with such as they have in use in the city of Monroe, Missouri-like, they wished to be shown. At the close of an inspection of the Cleveland, Ohio, streets by these gentlemen a remarkable confession was made by one and all. It was to the effect that no kind of representation in the absence of actual physical proof, such as was given them in the city of Cleveland, would ever have convinced them or ever have lodged in their minds more than a faintest conception of what was found to be possible in the construction of a really first-class brick street. The contrast was, and is, so great as to be beyond belief. This experience, however, was no more than a repetition of every experience covering like circumstances. If the difference really was so extreme, wherein does it lie, and what constitutes so great a contrast? Or, rather, what is there in the appearance, use and character of the high-class street that contradistinguishes it from the poorer one? Do not jump at the usual first conclusion; it does not lie with any particular make of brick to mark the difference, neither is the brick alone made to bear all the burdens in a first-class street; nor is it the particular make of brick that marks the poor street, but it is the details of construction that always insures the best.

A first-class street is shown by the nature and character

all interest charges on its original cost, and depreciating so little year by year as to afford no concern whatever.

Such a street was referred to by Professor Ira O. Baker of Illinois in his work on "Roads and Pavements," prepared some ten years ago. This pavement was eleven years in use at the time this book was written. A few days ago, nine years after its first examination, Professor Baker, while upon the self-same street, was asked in the presence of a number of engineers how much additional wear was observable. He replied that he could contradistinguish no difference in its condition then and that of nine years previous. The economical value of such a street is worth while. The difference in the cost of such a street and that of the poorer one is infinitesimal. It is more the product of horse sense and disposition than in an excessive expenditure of dollars. So much may be said of its worth and its beauty. Its economy cannot be measured by experience, because no such street has been in use sufficient length of time to put any limitation upon its life; not yet of age, as it has only been twenty years since the first streets of this character were given to the public.

I scarcely need describe streets of other construction, be-

cause by reason of familiarity with them they have bred indifference, and nothing has aroused you for something better. In constructing them you have been entirely neglectful to details. Ease and lethargy have influenced manner and method, and no one has stood up to demand otherwise. Carelessness and thoughtlessness have characterized the work as though but a few dollars were being expended, when in truth and in fact thousands and thousands of taxpayers' money is involved. The street is a reflection on the intelligence of the officials having to do with its construction. It fails in ultimate satisfaction, and as an asset of value is scarcely worth the listing.

The two cities of Cincinnati and Cleveland, Ohio, afford a striking illustration.

Many makes of brick are

used in each of these cities, respectively, for street improvements, but the same make of brick is used in each of the cities, so that so far as the brick are concerned in the streets of the two cities there is no difference whatever. The traffic to which the streets of each city respectively are subjected is without difference, but it is entirely within the bounds of truth to say that 90 per cent. of the brick streets of the city of Cincinnati are not worth 25 cents on the dollar. On the other hand, 90 per cent. of the brick streets of the city of Cleveland, regardless of age, are worth today 95 cents on the dollar. Why it is that there yet remains a single city in this Union that refuses to build brick streets at their best, in view of all the sufficient evidence that they may be easily and without additional cost at their best, is past human understanding. The requirements of manner, method and detail are so simple and so easily understood that there is absolutely no excuse for them to be built otherwise, and even a disgrace if they shall be built wrong. What are the chief characteristics in detail that contribute so much to the value of a brick street? Let me enumerate briefly: The sub-foundation, the grade shall be compressed and made to conform with the grade of the finished street, and not made otherwise until the street has been



POOR CONSTRUCTION: This is a Horrible Example of How Not to Lay a Brick Pavement. The Brick Are from the Same Kilns as Those on Opposite Page. The Traffic is About the Same. The Difference in Wearing Quality is Due to Manner of Construction.

of wear in its use; that is to say, the brick do not chip off at their edges. The whole surface is monolithic, and while it is slightly roughened by the character of the brick themselves when new because of their being brought to a molten state in burning, necessitates a lack of smoothness and straight alignment of the surface. In the use and wear of such a street the fact that it is monolithic insures, after five or six years, a smooth surface entirely free from waves or depressions of any sort. The plain a perfect and unchanging one, over which a vehicle passes without jolt or jar with the greatest comfort to the user and least possible traction resistance. The sanitary condition does not permit any possible contamination of the soil, does not originate dust, and from which the offal of the street is readily and completely removed, as from a mosaic or marble floor. The brick surface made monolithic in character, lies with its full weight perfectly imbedded in the sand cushion, reducing the noise from the impact to a minimum, rendering the adhesion of offal impossible and presenting a condition of beauty not found in any other construction whatsoever.

This picture is neither overdrawn nor exaggerated. Unaffected by climatic changes, it is worth in use far exceeding

built thereupon through any excuses of convenience, weather or whatsoever. After this sub-grade or foundation be built of sand or gravel then a concrete foundation shall be placed thereon, the finished surface of which shall be smooth and the grade of which shall likewise conform to the grade of the finished street. Its strength and hardness shall, of course, be maintained by proper mixture of ingredients. Upon this foundation shall be placed a cushion of uniform two-inch thickness of sand. This cushion of sand shall be thoroughly and uniformly compressed with a light roller, so that it shall afford a uniform support to the wearing surface of the brick that is to be placed upon it, with the best edges uppermost, laid neatly together. These brick, when rolled, shall be compressed into the sand cushion with a roller not exceeding five tons in weight. I say a roller not exceeding five tons in weight because you cannot properly compress them or incidentally compress the sand cushion underneath uniformly with a roller weighing eight or ten tons, but it can be done, and properly done, and skilfully done, with a roller weighing anywhere from three and one-half to five tons.

Next comes the filler, about which in some localities there is persuaded an honest doubt over the advisability of using some sort of so-called soft filler, but there is really no excuse and no virtue whatever in the use of any kind of soft filler, under whatever name, unless it simply be predetermined to impose upon the taxpayers and the traveling public a street in value far below its actual cost. It is in the use of the cement filler that the ideal is permanently maintained, because the brick will permanently protect the cement filler, but they will not permanently protect the soft fillers of any kind any great length of time. And while the brick cannot protect the soft filler any great length of time, the soft filler affords no protection whatever to the brick, and with the soft fillers the brick chip and no uniformity of wear obtains; but let there be no misunderstanding. A so-called cement-filled street may not afford the satisfaction and the ideal, nor can it be expected to in comparison with a cement-filled street in truth and in fact. Let there be no misunderstanding again that there is no difficulty whatever in the proper application of a cement filler insuring an ideal street in truth and in fact. All that is required is the disposition and determination to follow the plan and simple directions as laid down in the National Paving Brick Manufacturers' Association's No. 1 Specifications, which are easily obtainable upon a simple request directed to the headquarters of that association in the city of Indianapolis.

THE WESTERN BRICK COMPANY TO ERECT AN ADDITIONAL PLANT.

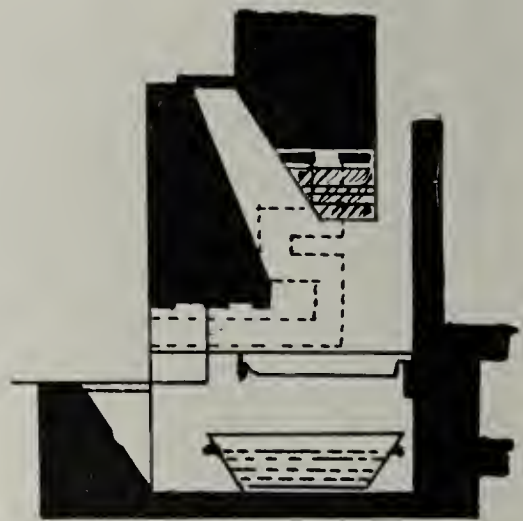
The Western Brick Company of Danville, Ill., the largest manufacturer of face brick in the Central States, if not in the United States, have just placed an order with C. & A. Potts & Co., of Indianapolis, Ind., for another horizontal brick machine. This makes the second machine of this kind furnished by Potts & Co. to this firm. The first machine was purchased ten years ago; has run continuously since, making 33,000 face brick every day. The brick made by this machine have been shipped to every part of the United States as face brick. The demand for this class of brick has increased each year, and this past season the Western Brick Company has been unable to meet the demand for them, making it necessary for them to purchase an entire new location and erect a new plant for the manufacture of this famous sand-mold brick. Every brick made in the new plant will be face brick.

Mr. Frank Butterworth, the general manager of the company, was at one time general manager of the Marion Brick Company, at that time operating the largest building brick plant in the Central States. During his time with this company four Potts horizontal machines were used. All of which goes to show what one of the largest and most successful brick manufacturers in the United States thinks of a Potts machine.



Employees' Vacation.—The Royal Danish Porcelain Manufactory, in Copenhagen, has shut down the whole plant for one week in order to give the employees a week's vacation. The employees are given full pay for this week, and the pay-roll for this time amounts to 15,000 kronen (\$4,200). The week is used by the management for the necessary repairs.—*Sprechsaal* No. 31, 1910.

Experimental Test Kiln.—A small kiln for burning tests of clay material should have the following dimensions: 7 feet 4 inches long, width 3 feet 6 inches and height 7 feet. The quickest way for burning would be the installation of two half gas firing holes, one on each side. The grate bar surface will be big enough with four square feet. The half gas firing box has the advantage that a temperature of Cone 14 and 15 can be easily obtained. A temperature equal to Cone 9 can



Fire Box Experimental Kiln.

be obtained in an hour after starting the fire. The chimney to such kiln can be some 40 feet high.—*Tonind. Z.* No. 80, 1910.

Clay Cleaning and Stone Separator.—In reply to a question which clay cleaner has given the desired results among the following machines: Diesener (Charlotteburg), Bohn (Nagy-kikinds), Kuhnert (Meiszen), Smidth (Copenhagen) and Laeis (Trier), we find some twelve replies. Every reply favors its special machine, but the Diesener machine has been used by more brickmakers than any other machine. In nearly all cases it has given good results. The following data is quite interesting: The Diesener machine uses about 70 H. P. It furnishes sufficient clay for 25,000 to 27,000 brick. With an opening of two millimeters it will furnish enough clay for 15,000 roofing tiles, and it will take then only 12 H. P. to operate.—*Tonind. Z. Z.* No. 64, 1910.

Dry Floor for Drying Clay.—In the manufacturing of clay products it is often necessary that the raw materials, such as clays, sands and grog, should be dry before they are used. In many cases the heat from a kiln can be used, but if such is not the case, a regular dry floor should be built to dry these materials. The building of a dry floor in itself presents no difficulties. The only requirement is that the flue gases will travel through long flues in such a way as to give the dry floor an even heat all over. The plans as shown in the cuts will give a clear idea as to the building of the dry floor. To give the floor the desired capacity we will illustrate the

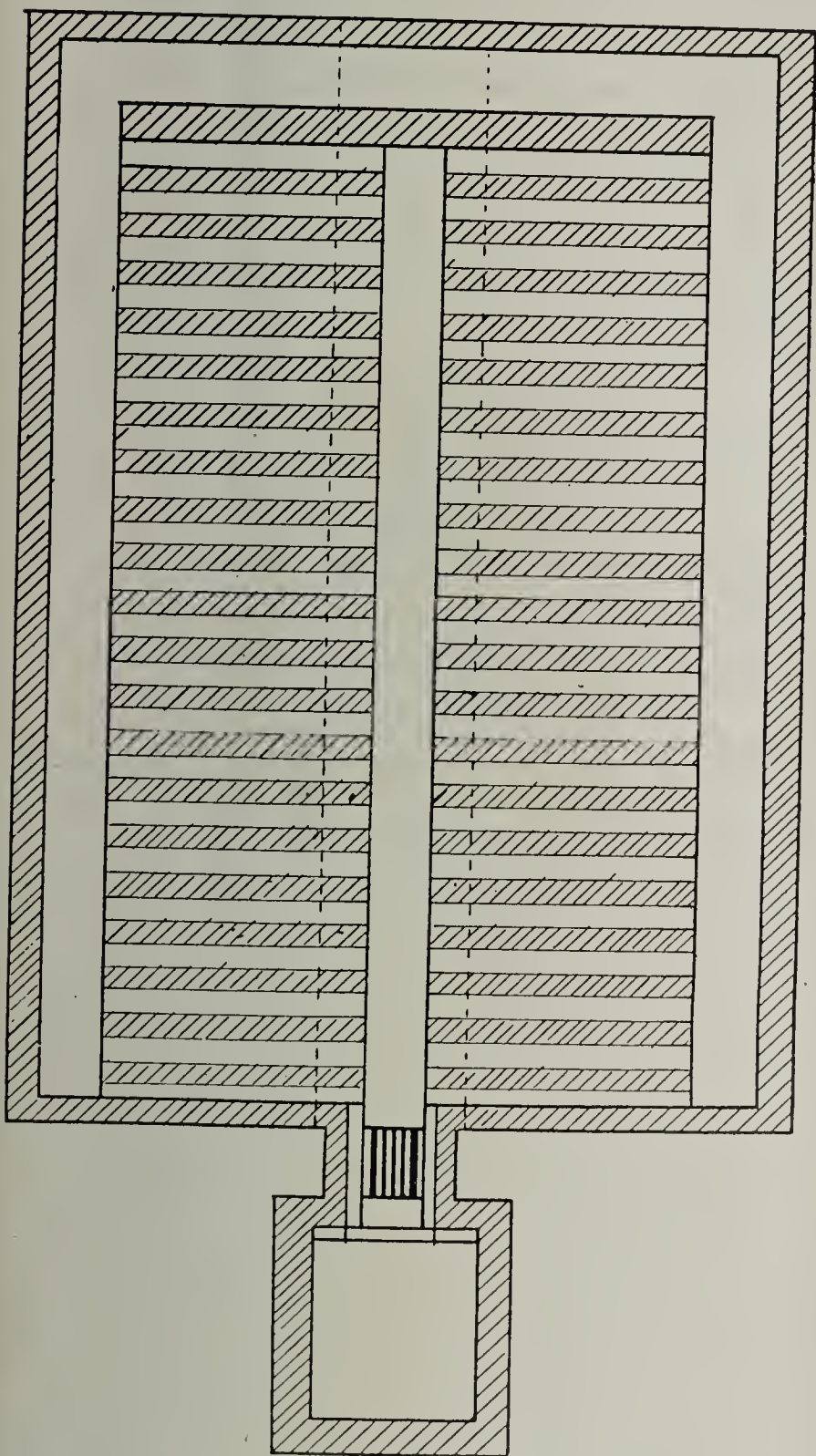
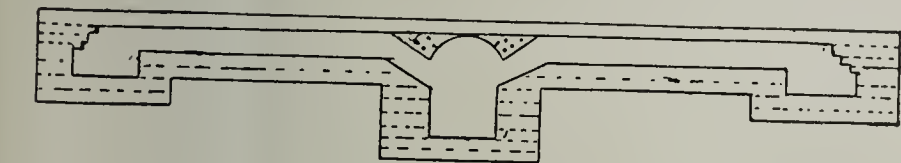
method of obtaining the desired dimensions: Capacity of the floor, ten tons of clay just from the mine, with 15 per cent. of moisture, should be filled up, dried and wheeled away again in twenty-four hours. The time for filling up and wheeling away can be counted for eight hours, which leaves for the actual drying time sixteen hours. Ten tons of clay are equal to about 200 cubic feet. If the clay is piled up nine inches high, then the surface of the floor should be 266 square feet. If the floor is twelve feet wide, then the length must be about

1,800,000 heat units. As the floor has only 50 per cent. actual effect, it will take 3,600,000 heat units. If we take a coal with about 6,000 heat units, then it will takes 600 pounds of coal to run this dry floor every twenty-four hours.—Keramische Rundschau No. 5, 1910.

Changing Hoffman Kiln to Gas Kiln.—The Hoffman kiln is the only continuous kiln which can be changed without much expense to a gas kiln. It is not difficult to either install the gas system on top or underground. The installation of the top feed of the gas is the less expensive and the simplest, as in addition to the erection of the gas producer, we only need the main gas canal and its branches. The changes to be made on the continuous kiln proper are very slight and consist of enlarging the feed holes in the arch of the kiln as to give the gas proper distribution. In spite of the fact that the top feed has many advantages, the bottom feed produces a better technical burning effect, and it is therefore advisable to use the bottom feed, as this is a more natural process of gas burning.—Deut. Topf & Z. Z. No. 60, 1910.

The Setting of Roofing Tiles in Continuous Kiln.—With the burning of roofing tiles in continuous kilns, especially of the Hoffman type, Mr. Paul Burg expresses the belief that in nearly every chamber where roofing tiles are burnt the cooling has been too great. The area of the floor flues is usually too great, and this is the cause of much air checking. The main remedy in this case will be the reducing of the size of the bottom flue, and in place of using two brick on edge only one will be used, which gives about a five-inch flue. The flue can be covered with a brick laying flat, so that the centers of the flues are about ten inches apart. The bottom flues are so formed that they have all an area of about 5x5 inches. By the use of this system an even draft is produced which will be sufficient with nearly all kinds of firing material.

Without it being necessary to emphasize, it requires a regular and well-controlled system of firing. The burner must know exactly which of the holes he will have to fire, and he should put the coal only in those holes which do not show any more unburnt coal. A slow and sluggish bottom fire, caused by the accumulation of unburnt coal, can in most cases be traced back to careless firing, provided that the kiln bottom is dry. When care has been taken to obtain a clear bottom flue fire the flues of the size as described above are amply sufficient to carry to the firing place the sufficient amount of air to make good combustion, and at the same time it will prevent too rapid cooling of the lower parts of the kiln. When the flues are covered with a brick laying flat the setting of the roofing tiles can be done right on top of the bottom brick. To obtain, however, a very good burn it is rather essential that the muffle principle shall be followed for the setting of roofing tiles. This method is used by those manufacturers which are making the better grades of roofing tiles, and is also used for clays which are subjected to checking by cooling. With the setting of the roofing tiles good judgment should be used, and while in a general way the usual principle of setting can be followed, there are cases where the setter or foreman should have enough practice to know how to change the setting to advantage. When the clay which is used has fire-resisting qualities and takes a high temperature for burning, the tiles can be set higher than usual. With roofing tiles which have low-burning qualities bricks should be used to make good protection for the tiles in burning. It is advisable to make the height of these small brick muffles such that the roofing tile can stand on edge, and to cover the same with one or two tiles flat in order to keep them straight. An objection which will be advanced by old tilemakers against this method is that much space is lost, which in reality is only very small. One of the first requirements of a burnt kiln is that we get a high percentage of first-class ware, and in practice we do not mind what method we use if we can get the highest percentage of firsts out of a kiln. From the point of view of a roofing tile manufacturer it is very important for the increased sale of his product that he should produce a tile which is as near perfect as can be desired, taking into consideration the total cost of the production. The old excuse "to blame everything on the burning of the kilns" cannot be made any more now, when a proper study of the burning and its causes have been made and put into effect.—Deut. Topf & Z. Z. No. 32.



Dry Floor Plan and Section.

twenty-two feet. The floor should be built of fire brick or hard burnt brick of standard size. The walls between the flues should have a thickness of half a brick, and with the floor brick laid in three-eighths joints, the flues are 4 and seven-eighths inches wide. The actual effect of the floor is from 50 to 60 per cent. When the clay contains 15 per cent. water, then we have to evaporate 3,000 pounds of water. To change one pound of water into steam it will take in round figures 600 heat units, thus for 3,000 pounds we will need

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

I am trying Standard Cones for determining burn. I have the ordinary red burning clay with about 25 per cent. of shale mixed in. We burn our brick (common wire cut) very hard. we have round down-draft kilns set 35 high on the flat. Cone .010 colors, but remains standing. Other numbers show no effect whatever. Can you tell me the trouble? Cone No. .010 seems to be for lowest temperature for which cones are made, but they will not go down for me, not even bind.

In the Standard Cone series, running from No. .022 to No. 3, a mixture of boracic acid iron oxide is part of its composition, and in the series running from No. 4 on upward such a mixture is eliminated, hence the fusing conditions differ. The oxide of iron is subject to a chemical change through reducing action of an incomplete combustion fire, and also through the sulphur gases coming from the burning fuel, in that the iron oxide may be changed to an iron sulphate, and "Venetian red" manufacture has shown that it is difficult to remove all the sulphur from the sulphate of iron. Some clayworkers claim that the sulphur gases from the burning fuel have also a detrimental action on the boracic acid. But be that as it may, attempts have been made to eliminate the oxide of iron from the lower number of cones. (See Gorton, Vol. 2, Trans. A. C. S.) If the oxide of iron no longer exists as such in the cone, then it fails of its mission as a flux at the desired temperature. The boracic acid being used in a fritted state, has a lower melting point than the to-be-formed ferric-iron-silica compound, and hence it may seep away in a melted condition from the unfused remainder of the cone, which would in turn cause irregular melting down. This seeping away would leave the upper part of the cone minus its proportion of boracic acid frit and would make that part less fusible than the remainder of the cone. Again, this boracic acid frit may percolate more to the exterior of the cone, causing fusion there at a lower temperature and thereby the cone may retain the gases developed by the interior fusion, causing blubbing, blistering or puffing, or the now defective reactions of the elementary component parts of the cones may cause the cones to dry up. Care should be taken in firing for cones, as too slow heating may in a measure cause the boracic acid frit to seep or percolate away from the porous body, or to explain in another way: do not hold the cone at such a low temperature so long that only the boracic acid frit will melt and leave the remaining unfused portion of the cone. Then, again, cones should not be placed where they will heat up too rapidly, as the outside portion may fuse and prevent the gases from the interior fusing portions leaving the cones through the then sealed exterior pore space. This latter condition is very often caused by the quick, intense heating power of the so-called (stickflamme) impinging flash flame. But seemingly the most trouble is caused when the fusion of the iron is affected by the sulphur gases coming from the burning coal. Another source of trouble is in chilling the fusing or melting cones, as it is an unreliable subsequent fusion that takes place with reheating owing to the differential temperature existing in the interior of the cones compared to the exterior. A well-made cone should run to a point, and such being the case, this thinnest portion should fuse first and then, being softer, should bend or curl over toward the curved side. Good cones should curve a little in drying and cones having no curve or having broken-off tops are liable to squat or not melt down properly. When almost at fusing point this tip will glow very bright, and should the cone be then chilled so much that fusing will be discontinued the cone is apt to either dry up or puff after fusion has once begun. Care should be taken not to let the temperature drop back, as unreliable fusion is

apt to occur later on. It may be barely possible that your trouble lies in the fact that you only set your brick 35 high on the flat, which would indicate that there is so-called "lost space" between the top of your setting and the kiln crown. This "lost space" is an important factor in burning "flash brick," which are also set on the flat, in that "reducing actions" are easily produced which are of benefit in burning "flash brick," but are, as already stated, a detriment to cones containing iron. You should take care in setting your cones that they are so placed that they are not heated up too rapidly, cannot be chilled suddenly and that the flash flame cannot reach them. This can be done very readily by casing them up or boxing them in so that they are not subject to any of the detrimental factors above named. I have used .010 cones in great numbers in burning such a clay mixture as you mention and never had any trouble simply because the cones were always well protected.

We are seriously considering the erection of a continuous kiln. Can you give us any information through the columns of *The Clay-Worker*?

This simple question and the reply thereto carries so much matter with it that to go into all possible details would fill a good-sized book, and the reply therefore will have to be very much condensed to fit the ordinary "Question Column." Personally I am convinced that the "continuous kiln" principle is correct, and it is only a question of time till all enterprising brickmakers will and must recognize its value and merits. But it should be borne in mind that certain types are of especial value for certain types of clay products, looking at the question as regards either low cost of installation and question of direct or indirect coal firing, etc. Thus it may be of advantage to put in an ordinary Hoffman kiln where the user has only to look after cheap results and a gas-fired kiln may be too costly, or it may be a bad move to attempt to use a common Hoffman kiln when a gas-fired kiln has by practical use proven to be the best for the intended purpose. Each and every type, its construction and operating features has its specific benefits. For some purposes a kiln that was called a good continuous kiln twenty years ago is now practically an obsolete factor as to the present improvements in continuous kilns. But if the intending purchaser selects the highest type kiln, that is supplied with necessary regulating and operating devices, then he will be able to burn all kinds of ware in the same. It is with kilns as it is with all other commodities, the best is the cheapest, but the cheapest is not always the best. As a question of primary economy the consideration of costs is a leading factor, and as some systems cost more than others, the writer has no particular kiln to recommend along the above lines, but as an initial step will take up the evolution of the various

Types of the Continuous Kiln.

The original Hoffman kiln consists essentially of an annular chamber, in which the fire travels in a practically horizontal direction. This chamber is supplied with openings or flues connecting with a stack to carry off the water-smoke and products of combustion. The firing is generally done with coal in so-called "fire shafts." This type of kiln is the cheapest to build and operate, and is particularly adapted to certain kinds of cheap brick. But the fact that the combustion gases and ashes discolor the burnt products, coupled with the fact that sometimes the firing shafts move from their proper positions, led to the adoption of the so-called "Heiz Schraencke," or what might be called heat walls, which consist essentially of the two walls, and are supplied on their interior space with

retaining plates for the fuel entering this space. In a measure there is created thereby a combustion chamber which to a partial extent does away with the so-called "flashing flame" (stickflamme). But the fact that these walls sometimes decrease the draft up to 25 per cent. makes the primary draft power of the stack just that much weaker and at the same time cuts down the green brick setting space. There are quite a number of patented forms, some even using green brick in part, so as not to lose too much in setting capacity. In this style of kiln construction the fire enters the next chamber, first traveling along the bottom, and in this way sometimes makes it difficult to get the tops and very often the bottom was in bad shape, in that the brick on the bottom were the hottest and had to carry the whole weight. The temporary heat walls led to permanent ones in the shape of combustion chambers and bag walls, with the fire coming over from the top, and thus began the type of compartment down-draft continuous kiln. It was found that the bricks set the closest to the bag wall were sometimes over burnt, and to overcome this defect racking back was resorted to. But this cut down the capacity so much that the compartments were made wider and wider, until eventually some kilns were planned so wide that combustion chambers and bag walls had to be put in on both sides of the compartments, resulting in turn in the central exit flue. But with all these improvements so far the detrimental "ash" factor was not eliminated and recourse was had to the gas producer, in which system the ash remained in the producer, so that no contamination from ashes could result. But bear in mind that with injudicious use of gas the ware in the kiln can be injured, so far as color and shape is concerned, just as though the fuel were used direct.

Selection of Type Kiln.

One of the valuable points to bear in mind is to have your kiln long enough so as to have sufficient length for cooking, burning, preheating, water smoking, setting and emptying. This varies with different kinds of clay and class of ware burnt therein. For instance, it will not take as long a kiln for handling a clay that is coarse grained and can be water-smoked, burned and cooled rapidly as it would for a clay of a close grain, very plastic nature, and therefore water-smokes and burns slowly and may also have to be cooled off very slowly. Then again, ware like drain tile burns more rapidly than a seven-pound paving block. Of course it will save money in construction to erect as short a kiln as is commanded by your clay and ware.

Arrangements should be made in the construction for conditions adapted to "soaking" and "annealing." If you will bear in mind that a compartment continuous kiln is nothing but a number of down-draft oblong kilns placed side by side, as when burning pavers, and if you have burnt pavers in such last mentioned kilns, you can readily determine the duration of the soaking as well as the annealing period. And if you bear in mind that if you don't add to the length of the kiln to compensate for this lengthened time of burning or annealing you will not get the full benefit that is to be derived from the continuous kiln. If you have burned sewer pipe, whether from shale or fire-clay mixtures, you know that you must have means to control the quantity and quality of heat and must be able to throw this certain compartment out of the direct train of draft in order to anneal your sewer pipe and have a good salt glaze. Again, if you have burned "calcareous" clay you know that you must have arrangements and means to have reducing conditions at times to eliminate the sulphur, and that, too, in such a way that the cooling ware is not damaged. Then again, proper conditions should be creatable to handle carboniferous or pyrotiferous shales or clays. Thus it is plainly seen that kilns must be adaptable to the necessary conditions or requirements demanded, also that some types of kilns are not adapted for all purposes. A highest type of kiln can be used to burn every kind of ware, whereas the ordinary Hoffman kiln cannot at all times be used to attain per-

fect results. Flues and stacks must be in correct proportion to the length of the kiln, temperature, class of fuel and duration of burning, etc. The chances are that by adding more chambers to an already existing kiln that the flue and stack conditions will no longer be normal. European brickmakers have had the continuous kiln problem before them for fifty years, and yet with all that new kilns are presented almost every year, simply because new burning problems are continually presenting themselves. Offer slight changes in the existing conditions bring about phenomenal results. But the European brickmakers also have found out that it is a wise precaution to get opinions on the proposed continuous kiln proposition from independent and reliable technical bureaus. A little money preliminarily spent, they know, may mean the saving of thousands of dollars. The salesman may make misrepresentations to close the sale, in an innocent way, because he seldom is acquainted with the difficulties that beset the user of the continuous kiln. At best every continuous kiln is a proposition in itself, depending upon so many different things, as shown in this article. Another thing I would particularly caution you about: Be sure to get good mechanics to erect your proposed continuous kiln, but oftentimes the contract to build is given to a local contractor, who knows but very little about fire brick work or kiln building, and often serious troubles are caused by leaky walls and defective bottoms. Then do not stint yourself in the material that enters into the construction of the kiln, but be sure to use good fire brick material, where the hot fires are. Be sure to use material in the bottom that has had full shrinkage, and finally the writer would caution you not to conclude to erect your continuous kiln in a harum scarum, excited kind of a way, but profit by the tactics of the European fellow craftsmen so that you will get a kiln that is suitable to your fuel, clay, ware and market competition.

Written for THE CLAY-WORKER.

THE BLUNDERING WAYS OF LOGIC.

"Logic is like a good, old reliable horse. It is a great thing to tie to, and it will pull you along through muddy places and over the bumps. and also like a good old work horse, it will sometimes blunder and stumble."

This philosophical observation came from a quiet member who had been listening to a lot of arguments and shop-talk demonstrations by a group of brick men on the cost of production, the cost of handling and of marketing.

The talk had turned on the question of how it is certain competitors seemingly at times can make prices that, according to the best figures available, mean a loss and yet manage somehow to go ahead and get a profit out of the business. All the logic and all the figures point toward his losing money, and to meet his competition means the loss of money often for people who seemingly are better equipped to supply the trade. And the great question that all seemed unable to solve was why these things are, and how competitors of this kind manage to continue doing business and seemingly make some money.

One of the group turned to the quiet member and said: "Just what do you mean by that? Do you mean that our logic has blundered here somewhat, and that this man has some secrets of production or some short cuts in handling his stuff that enable him to make a profit where our figures show a loss?"

"I don't know as to this particular case," said the Q. M., "but I do know that logic has some blundering ways.

"I learned a lesson on this point one time from a friend in the box business. He said that he had not only up-to-date machinery, but that he also took pride in his employes, had the best skilled help available. Notwithstanding all this, he found that there was a little Jew second-hand dealer with a box shop up an alley in an old warehouse that he stored stuff in, who was making prices on some new work that he couldn't meet.

"At first he took it for granted that he was doing what we

call sweat-shop business, having people to work for him for practically nothing, and was squeezing out a penny here and there.

"Imagine his surprise, though, when one day he learned that this little Jew had an old German working for him nailing up boxes, and that this German was drawing more in the way of wages each week than the best nailer in his own factory.

"He put it up to his foreman to solve the problem for him and tell him why it was this Jew could underestimate them in boxes and yet the German working for him nailing up boxes was drawing heavier pay each week than the best man in his shop.

"His foreman racked his brain for several days trying to solve the riddle and finally stumbled onto the answer through one of the boys in the factory overhearing him discuss the subject. The kid grinned a little and told them the answer was simple, and here is what it was:

"This old German took the contract for nailing up boxes on the piece-work basis at a somewhat smaller figure than the regular schedule. Then he turned in and employed three or four boys to assist him, paying them about \$3.00 or \$3.50 a week. After training the boys and keeping after them to see that they worked industriously, he could make each of



The Haigh Continuous Kiln.

these boys do more nailing in a week than he could, and as a result of all their labor he drew down a fat week's pay-roll, notwithstanding that as a nailer of boxes pure and simple he would not have earned more than half of what my box-making friend was paying his men.

"Now, you can apply that any way you please. This box man had all the up-to-date machinery, all the equipment, skilled help, and had the cost business all figured out, and according to all the best logic, he had the inside track, and yet you can easily see where his logic blundered. In your case it may not blunder in the same place, but I want to tell you this: That whenever I find a man who can beat my prices I am not going to bother my head so much about how he can afford to do it as I am trying to find out how it is he does his business and wherein my logic is blundering and I am missing something I ought to know about."

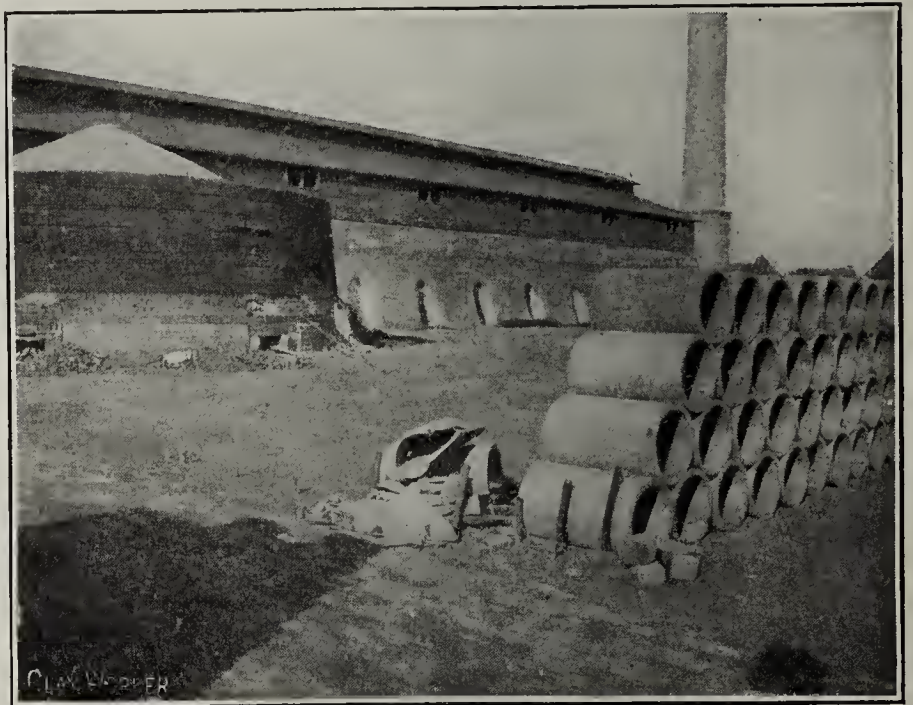
The education problem—that is, the proper education of the young man—gets an inning now, and it is easy to see more disposition to embody along with the mental training a fair amount of physical training also. The trade school has done much to bring this about, and it needs more attention, both to the trade school and to teaching trades in the public schools.

Written for THE CLAY-WORKER.

BURNING DRAIN TILE IN A HAIGH CONTINUOUS KILN.

ON THE EDGE of the little town of Colfax, Ind., in the southwestern corner of Clinton county, is located the interesting and unusual plant of the M. J. Lee Drain Tile Company. The feature of this drain tile factory is the employment of the Haigh continuous kiln in the burning of their ware. This kiln has been operated successfully since its erection a year ago and has been so satisfactory in its working that the company is well pleased with the investment.

Mr. M. J. Lee, the president of the company, is one of the



A Corner of the Yard of the Lee Drain Tile Company.



Setting One of Twelve Chambers.

pioneer tilemakers. He has been actively interested in the clayworking industry for over forty years, and is known as the father of the steam drying system. In the early years of his work in the clay line he manufactured brick, but not for long, for he saw the vast opportunities in drain tile when tile drainage was in its infancy in the Central States and turned his attention to the production of a high-grade clay drain tile. His first plant was built in Crawfordsville, where it is still in operation under his management. Besides the Crawfordsville and Colfax plants he owns a brick and drain tile factory at Paola, Kas.

In the Colfax plant they make all sizes of tile from four to thirty inches, using shale, fire and surface clay. The large

size tile are made from a combination of shale, fire clay and surface clay, while the smaller tile are made from the surface clay only. Different proportions of shale are used according to specifications of the order.

The surface clay is taken from a forty-acre field at the rear of the factory. The plant is operated the year round, portions of the field being covered with straw in the early fall for winter run. Six inches of the surface is thrown back. The clay is an easily worked alluvial clay, which averages four feet in thickness. Four men are employed in the field, while a fifth oversees the hauling. The clay is spaded with twenty-inch spades, which take on the average sixteen inches of clay. The clay is thrown into wooden bottom dump cars that hold one and one-half yards of clay each. Two cars are loaded at a time. The cars are peculiar in construction. The axles are solid with the wheels and extend through the bed of the car proper, the bottom being below the axles in order to facilitate the dumping. The handle on the side of each car, which is used for opening the bottom in dumping, is held in place by means of an iron hook, which is easily knocked back, releasing the handle, the car thus being quickly emptied. Two cars of clay are hauled at a time on a narrow-gauge track to the incline at the plant a quarter of a mile distant. The horse employed in this work has hauled clay cars for nearly sixteen years and is still faithfully doing a full day's

two bins are built close together, the two feeders being installed in such a fashion as to enable the bin man to feed from either bin or both as desired. A short chute takes the clay from the company's twelve-foot spiral feeder to the large Brewer crusher, while a belt conveyor is used for conveying the clay from the Rust clay feeder to crusher.

From the crusher the material is carried to the third floor on a sixteen-inch bucket elevator made by Taplin-Rice-Clerkin Company, of Akron, Ohio. On the third floor the clay is run through a Brewer pug mill, from which it is taken to a Taplin-Rice-Clerkin large tile press by means of a flying belt conveyor. The large tile press makes its delivery on the second floor, where the larger size tiles and pipes are dried. This large press makes from fourteen to thirty-inch ware. A wooden pallet is put on the table rod, the piston raises the table to the press and the piston is then lowered with the tile resting firmly on the pallet. The tile are cut by hand and lifted off the table on the pallet and carried to the stand near the press, where the pipe or tile are cut by means of an unique device. In making the larger tile one side of the circular clay column runs faster than the other so that extra cutting is necessary to true ware up properly. The cutting device is a horizontal iron pipe, connected in the center by a long vertical iron pipe, enclosed in a second pipe, which is fastened above on a bracket attached to platform floor of the press.



The Incline at Rear of the Plant.



A Glimpse of the Clay Field.

work, hauling sixty cars daily. At the bottom of the incline the cars are hitched to a cable and a winding drum.

The shale is obtained from Sand Creek, thirty miles from the plant. Two large cars of shale are shipped in each week, giving the plant sufficient raw material for the work. The shale and clays are mixed together and used in runs on the larger size tile, the shale giving the mixture the firmness which enables them to make much faster. Fifty-six four-inch tile can be made in one minute with a shale mixture, while only forty-five can be made with the surface clay alone. Although shale tile can be made faster than the surface clay tile, the ordinary run in smaller sizes is with the latter, the demand for small tile being in surface clay ware. The shale mixture has another advantage, i. e., enables quicker drying.

The cars of shale and fire clay are unloaded near the plant and hauled in wagons to the chute over the Brewer nine-foot dry pan, where the mixture is ground and then elevated and screened. Stevenson screens are used. The screened material drops into a bin which is supplied with an automatic spiral feeder of the company's own design and used as wanted. The surface clay is dumped into a bin holding 200 cars, or a supply sufficient for a two and one-half days' run. In the bottom of this bin is a "Rust clay feeder," made by the Marion Foundry and Machine Company, of Marion, Ind. The

To the horizontal and vertical pipe is attached a weight which keeps the cutting device in place over head. At either end of the horizontal pipe are two prongs six or eight inches apart and extending down a like distance. Attached to the lower ends of these prongs are wires for the cutting. After the pipe or tile are placed on the stand directly underneath the cutting device, the horizontal bar is pulled down and turned around the wires, thus cutting the ware evenly, after which the device is pulled back in place by means of the weight. The pipe or tile are carted to the drying floor on two and four-wheeled trucks. Two large pipe or tile can be carried on the four-wheeled trucks, while only one on the two-wheeled.

On the first floor is installed the Brewer 10 A horizontal machine, on which all the smaller sizes are made. Here the 4 to 12-inch ware is cut on a Brewer No. 77 automatic cutting table, while the two-foot lengths on 8's and 12's are cut on a Brewer hand cutting machine. Only twenty minutes are required for changing from automatic to hand cutting. Twenty-four 8-inch tile a minute is the ordinary run on that size.

The tile and pipe are dried in six drying rooms and a double-deck shed. There are four drying rooms on the second floor and two on the third, while the double-deck shed is on the first floor. Twenty-four thousand feet of 15-inch tile can be placed on the floor of each drying room, while the drying

shed holds one mile of tile running 10 and 12 inches in size. Forty thousand fours or 1,000 feet of large tile can be placed on the bottom floor.

The floors and shed are well equipped with pipe for the steam drying. In the drying four days are required for drying 4's and 8's, seven days for 12's and 15's, and ten days for 30-inch tile or pipe. The ware is burned in three round down-draft kilns and a Haigh twelve-chamber continuous kiln. The latter was erected this year, and at the time of the writer's visit had turned out fourteen burns, all of which had been far better than had ever been expected by the company. The kiln has proved thoroughly satisfactory and economical for the burning of tile and pipe, and so well pleased is Mr. Lee that he is going to extend the kiln in a short time. The chambers of the kiln are 12 by 15 feet, and are set with one stand of small pipe, then four stands of thirty, with tile inside of all sizes. The top row is covered with small tile, thus all space being filled. Forty to sixty hours are required in the burning of each chamber from start to finish, while the round down-draft kilns required four days of firing. Indiana coal is used

for fuel, 500 tons being consumed monthly. The Orton cones are employed for obtaining accurate information as to temperatures of chambers and kilns. A large 360-foot radial block chimney furnishes sufficient draft for a thirty-chamber kiln.

The power of the plant is furnished by means of two Chandler & Taylor 66x16 high pressure boilers of 100 h. p. each, and a Chandler & Taylor 135 h. p. engine. The water supply is taken from two 90-foot wells. The company has its own acetylene gas plant for furnishing light. Two acres surrounding the office building is used for stock.

A new brick office building is to be erected in the very near future. The company has excellent shipping facilities, the Vandalia and Big Four skirting their property. The shipping territory comprises Clinton, Boone, Tippecanoe, Montgomery and Carroll counties. The company owns a stable that houses sixteen horses. Five teams are used constantly for nothing but hauling finished ware.

The officers of the company are: M. J. Lee, president; H. K. Lee, vice-president, and J. B. Casey, secretary and treasurer.

REMINISCENCES OF BRICK MANUFACTURING AND BRICK MACHINES.

Written for The Clay-Worker by George S. Tiffany.

BRICK MACHINES AND BRICKMAKING.

WE PRESENT to the readers of THE CLAY-WORKER a copy of the patent granted to Swords and Tiffany forty-six years ago for a mold wheel brick machine. From the time one of these machines was first installed on the yard of Swords Bros. in Adrian they have been used by Swords Bros. and their successor, Mr. Edwin Swords, until within a few years, when, the clay becoming exhausted, the business was abandoned. I have been told that Porter L. Swords made two fortunes out of the manufacture and sale of the machine, lost them both, and died poor. The younger brother, Mr. Edwin Swords, has followed the brickmaking business, acquired a good business reputation and a comfortable fortune, and retired from business. With these machines he has made a large proportion of the brick of which the city of Adrian, Mich., is built. The machines are still manufactured by the H. Brewer Company, of Tecumseh, Mich., but for nearly ten years they have not been advertised in any journal or in any way outside of their catalogue. No machine, I care not how good it may be, will come into general use without judicious advertising, or continue in use without energetic and persistent effort to promote sales.

There were many mold wheel machines designed to mold bricks of stiff clay before this, but they have gone out of use, so far as I know, and the question what inherent qualities have given to this machine its longevity in this age of change and improvement should be of interest to manufacturers and designers of clayworking machinery. The good machines do not die young.

It is not necessary to the purpose for which this article is written to give a detailed description of all its parts, but simply of those that distinguish it from other machines. We read from the patent: "There is an elevated portion of the bed-plate J which forms a recess from the under side of the bed-plate that communicates with the grinding mill. Within this recess W an inclined plane O having curved sides is pivoted, the lower end of which rests upon the side of the wheel and is fixed in that position by means of a screw L, which works in a thread in the elevated portion of the bed-plate J. The sides of this recess W form continuous curves with sides of an opening in the bed-plate extending across that part which forms the bottom of the cylinder S described from the center of the shaft C. This opening is over the

space traversed by the molds xxx. It will be seen that the mold is being filled from the time it passes beneath the grinding mill until it leaves the inclined plane O—about one-third of its revolution—and is powerfully compressed by the inclined plane O." Formerly the molds were filled by the direct action of the screw propeller on the mill shaft and through a small opening in the bed-plate. This improvement greatly increased the time of filling the molds, and also used the inclined plane for that purpose. "Below the mold wheel and directly beneath the inclined plane is a wheel T, so placed that when the mold wheel is in motion the pins in the bottoms of the molds pass over it and are raised a very little, thus producing a pressure upon the clay in the mold from below at the same time that it is subjected to a pressure from above by the inclined plane O. This insures the filling of the lower corners of the mold," and, we may also add, secures a straighter brick.

In the description of the operation of this machine in the patent we read: "After passing the wheel T the bottom of the mold descends and the filling is completed by the inclined plane O." We consider this faulty construction. The bottom of the mold should rise to the required thickness of the brick and not be allowed to fall and the filling completed. If the bottom of the mold is raised higher than this and then the clay in the mold slips upon the clay without the mold and the bottom of the mold falls so as to bring that parting in the mold, there would be at least one lamination in the brick which would prevent the clean cutting of the brick with the trowel and cause the brick to flake when exposed to the weather. Unnumbered practical demonstrations have established the fact that a mold should be filled from a homogeneous body of clay. How can this be accomplished with a constantly moving mold? We conceived the idea that it might be done with a body of clay moving with the mold, and built a machine embodying this feature, and believe that if we had continued its manufacture it would have been a success, but our claims were rejected on account of interfering patents that did not contain this feature. We may illustrate our design and these patents in the future. Do not think that because we mention this fault that we consider a laminated brick a product peculiar to this machine. We are confident that with an auger machine we can make a brick with more laminations in it than can be made with a machine of any other type. We write without prejudice for or against any

type of machine, but simply as an artist in striving to make perfect his work seeks for imperfections in order to eliminate them.

What better idea of a brick machine could you have than of one that molds the bricks of stiff clay, to facilitate handling, molds them in steel molds to secure accuracy and uniformity of size, and does this without any auxiliary machines for preparing the clay or supplementary represses for finishing the bricks? And yet the mold wheel machine appears to have lost prestige, not on account of faults in the machine or in the character of its product, but because peculiar conditions in places of influence have given precedence to other machines

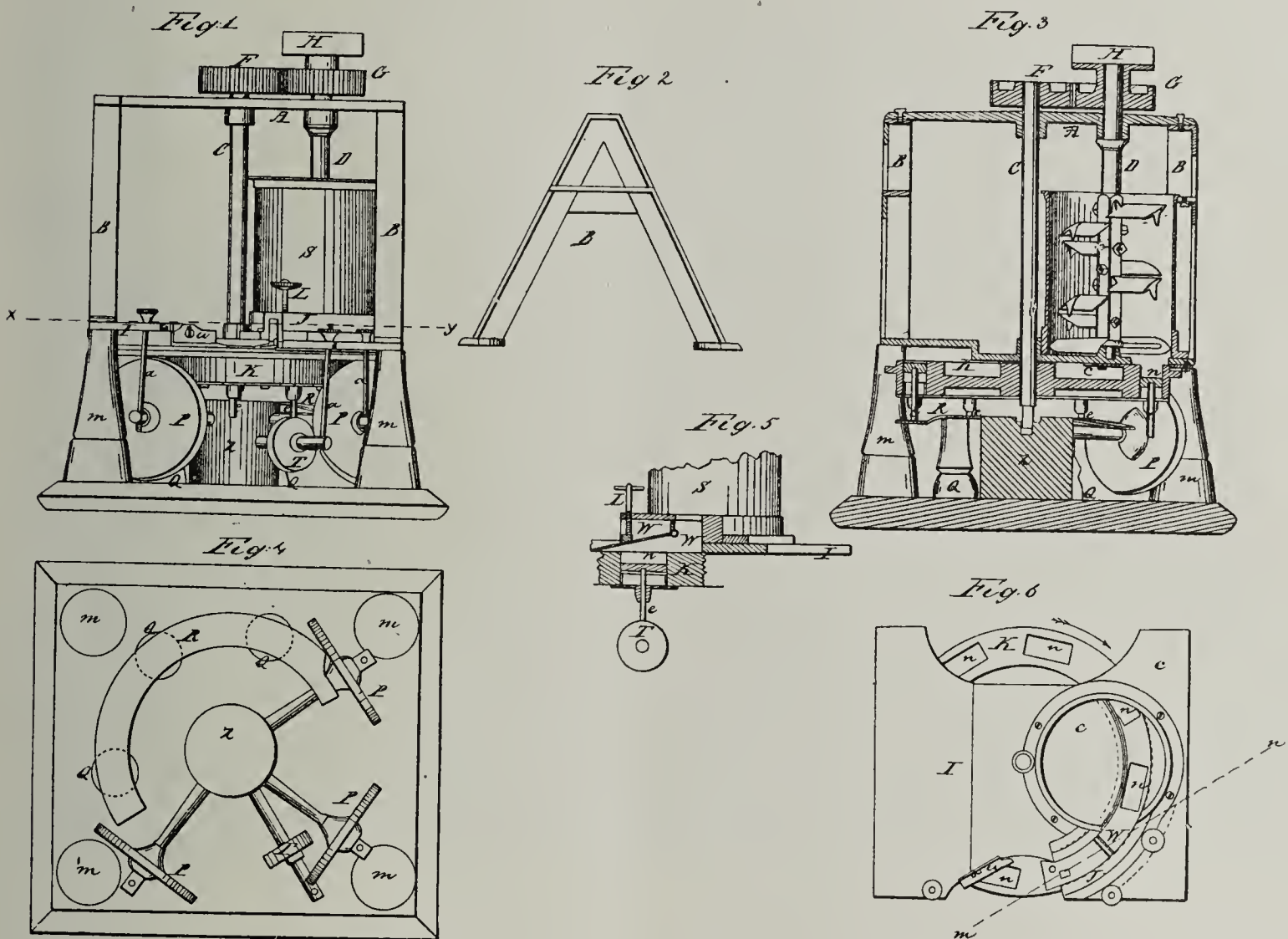
peculiar conditions referred to, we will speak of those which have existed in Chicago. The Chicago clay will not make a good face brick, on account of bad color. Probably not 3 per cent. of the bricks used in a building not on a corner are exposed in the front, and the rest may therefore be end-cut bricks.

A city that has grown in seventy-three years from the time of its incorporation to a population of over two millions, and has had its most rapid growth since the fire of 1871, has furnished a market for a low grade of brick as regards form and color such as probably never was known before since machines for making brick came into use. And the trade has

Sword & Tiffany, Brick Machine.

No 43,162.

Patented June 14, 1864.



Witnesses
Wm. L. Greenly
A. K. Whitmore

Inventor
Peter L. Sword
George S. Tiffany

that do not make so good a building brick. I refer particularly to the horizontal auger machines that were patented by Chambers in 1863. The end-cut brick is an unsightly thing, and as a building brick is only suitable for "backing and filling." The sides wash clean by the rain, but the ends hold dust, and, being more absorbent, absorb dirty water and grow darker. In some places brick made by the auger machine have been used for stretchers, and bricks made by the mold wheel machine have been used for headers and corners in the same building, which would be considered good evidence that the mold wheel machine made the best building brick and the auger machine made the cheaper brick. To describe the

been wonderfully increased by the demand for paving brick, which are almost exclusively end-cut brick. The National Brick Manufacturers' Association has indirectly advertised the end-cut brick machine in the great prominence they have in their discussions given to the making and testing of paving brick.

No one can seriously maintain that the same tests are suitable for a paving and a building brick. The paving brick is vitrified, and might prove to be first class by the rattler test, while the same kind of clay molded in the same way and burned to only an earthenware body might go all to pieces the first winter's exposure.

There are many places where the conditions are very dif-

ferent, where the clay will make a good face brick, where the buildings are more detached and a greater proportion of face brick are needed, where the mold wheel machine will make as good face brick as are required, and where a yard having a daily output from 25,000 to 40,000 would be sufficient to supply the demand. In supplying such places with bricks the mold wheel machine, with improved construction, may come into general use.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



LOCAL BUILDING brick manufacturing concerns report a healthy condition and a satisfactory trade throughout this section. Plants are all running at full blast, and there is no large surplus supply of building brick on hand. The demand from Michigan sections seems to have dropped off some, and is not so persistent as it was a few weeks ago, but a very nice business is still being done. On the other hand, there has been a stimulated market for building brick in the local field recently, and some other localities have more than made up the deficiency in the northern field. Considerable important work is now under way in Toledo, and other northwestern Ohio cities report a fair building business. Building operations in Toledo proper are still slightly behind last year for the first nine months, as shown by the records at the office of the city building inspector. While these records at best are but an estimate, they give an inkling of the true state of affairs in building lines.

The month of September brought an increase as compared with the corresponding period of last year amounting to \$66,816, the total estimated valuation of permits issued being \$407,743. Work is holding up well in October thus far, and the indications point to increased activity for the balance of the season. General activity is noted around the local concerns, which appear to have full confidence in the future. Some of them announce that they will continue to operate all winter, while others will no doubt close down for a few weeks during the winter, but all promise to continue their manufacturing business for some weeks at least. A slight decline was made in prices for home consumption for fall business, present quotations for home use being from \$6.75 net for common to \$7.25 for foundation brick and \$7.50 for face.

There has been an active demand for drain tile in the farming sections, there being a general disposition on the part of farmers to invest some of their surplus funds in tiling and otherwise improving their lands. Road work also continues a prolific source of profit in the tile business, there being an unusually large amount under way. There has also been considerable call for sewer drainage materials in municipalities of this section. Altogether, the tileworking concerns report a very satisfactory condition, with considerable business still in sight. Similar reports come from paving brick concerns, which have for the most part been kept busy supplying the needs of their customers in this line. Prices have held firm, and there is little indication of any material decline.

Harvey Gay, foreman at the Mosaic Tile Works at Zanesville, Ohio, recently met death in a peculiar manner. While inspecting an engine at the plant he caught hold of an electric light bulb, forming a short circuit in which 2,000 volts passed through his body. Death was instantaneous. He was thirty-eight years old, and leaves a family.

A sanitary sewer system will be constructed at Circleville, Ohio, in the immediate future. A resolution has been adopted authorizing the issue of bonds to the amount of \$15,000 to carry on the work.

While assisting in loading a 2,800-pound stone built by the Findlay Clay Pot Company, of Findlay, Ohio, and used for flattening window glass, John W. Ricksecker was pinned beneath the stone on the floor of a freight car. Ten men re-

moved the stone, and it is said he will recover, although badly bruised.

The fourth and last trade excursion of the season will be made by the Wholesale Merchants' and Manufacturers' Board of the Toledo Chamber of Commerce about the middle of October. Two of these jaunts were made in automobiles and one in electric cars. A large amount of benefit has been reaped by the campaign of trade extension inaugurated this summer, and brick men are not without their share, as witnessed by the strong demand for their products recently in outside territory.

An ordinance has been passed by the council of the city of Bellefontaine, Ohio, determining to proceed with the construction of a sanitary sewer system to cost in the neighborhood of \$91,000. It is probable that bonds will be sold the latter part of October.

S. S. Van Cleve, of London, Ohio, landed a nice contract at Dayton recently, when he was authorized at his bid to construct a mile of drain with 8-inch tile near that city.

The Collingwood Brick Company, at Toledo, reports a brisk trade which keeps the plant in full operation. The company recently made extensive improvements to meet the increased demand for building brick.

T. O. D.

GETTING ALL YOUR PROFIT.

WHILE MANY of us differ on the question of trusts and monopolies, in one particular we must give the trusts credit, viz., their success in converting what was considered waste into profitable by-products.

As has been said, that while the meat trust has not as yet found a way to make the squeal of the hog profitable, nevertheless the leather trust has succeeded in corraling the bark of the tree.

Seriously though, these little things count. Competition is so keen that plugging the small leaks has often turned a losing venture into a dividend-producer.

And that brings us right to the topic that's on our mind, viz., your exhaust steam. What are you doing with it?

From what we have seen and heard we presume many, too many, brickmakers are letting it waste itself.

And the pity of it is that this waste is all unnecessary, for, unlike the hog's squeal, a way has been found to "bottle" the exhaust and make it an active agent in the drying of your brick.

For the Standard Dry Kiln people of Indianapolis have devised a heating system that will come pretty close to extracting the last unit of heat out of your exhaust as well as cut down the cost of the dryer and its maintenance in other directions. It is not only superior to the ordinary system in point of construction, but possesses many other advantages, not the least of which is that it can be installed in your present plant.

Write the Standard Dry Kiln Company of Indianapolis for catalog of their Standard Dryer, which illustrates and describes both dryer and heating system in detail. And while you are about it tell them something about the size and capacity of your dryer and what you desire to accomplish. They will furnish (free) an estimate of the cost of taking out your present system and installing "The Standard."

THE SHRINKAGE OF CLAYS.

The shrinkage of clays is very different in various clays. If the shrinkage is very great there is considerable danger of cracking and warping. The shrinkage can be lessened by the mixing of sand, brick dust or grog. The shrinkage can be divided into two kinds—the drying shrinkage and the fire shrinkage. The fire shrinkage varies considerably also and depends a great deal on the temperature at which the clay is burnt. In some cases the shrinkage by burning is not noticeable; on the contrary, the clay has expanded. This is due to a very high percentage of sand or silica in the clay. The size of molds and dies should in every case be very carefully calculated with the drying and burning shrinkage, so that the clay product, after being burnt, will show the right dimensions.—Tonwaarenfabrikant No. 16, 1910.

A STATE FAIR SEWER PIPE DISPLAY.

ONE OF THE most unique and attractive displays made at the Kentucky State Fair this fall was that of the H. B. Milliken Sewer Pipe Company, of Louisville, Ky., who are agents for the Cannelton (Ind.) Sewer Pipe Company, which is illustrated herewith. The exhibit was designed and erected by Mr. Milliken, and not only attracted the attention of all visitors in that end of the fair ground, but it was the subject of much compliment because of its unique features.

The H. B. Milliken Sewer Pipe Company is one of the young concerns of Louisville, having been in business there only about six or seven months. They have a good product, though, and make an excellent showing. In addition to the sewer pipe material proper there was shown an exhibit of flue lining, wall caps and also an umbrella stand of burnt clay, which attracted a lot of favorable comment. This is a

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



PERATIONS IN Kansas City in the building line at the present time are more extensive than at any previous time this year, and the demand for building material of all kinds is strong. Brick is in good demand, but the prices still remain low on account of the fact that the quantity available is leading the demand a

little and some plants are more inclined to push sales by quoting low prices to the contractors than by depending upon the regular channels of distribution. The prices quoted by such plants are, of course, the basis upon which the market price is formed, and as a result the brick is being sold cheaply, and at the same time the plants making the prices are not making a very large proportion of the sales.

A well-known distributor of brick in this market remarked



Exhibit of H. B. Milliken Sewer Pipe Co. at Louisville State Fair.

little side line that they have been developing and which they say has met with quite a lot of favor, though they have not yet given much attention to pushing it.

The American Fire Brick Company of Spokane, Wash., are "going some," as the slang phrase goes, and they come a long ways for their machinery, but they claim it pays them. In 1903 they put Stevenson's wet pan to the test and came back in 1905 for a dry pan and elevators; then when business expanded to the extent of requiring another dry pan, nothing but Stevenson's would answer, and in June, 1909, it went in. Still they grew, and in May of this year a 40x52-inch sewer pipe press of the same make was added, with a fifty-one-foot elevator, and that is followed up this fall with another eight-inch wet pan in nine-inch frame and elevators complete from Stevenson Company, Wellsville, Ohio.

the other day that if the outside plants who want to sell their brick in this market would make connection with some distributor there would be no trouble in getting rid of the output and there would be a decent market to sell brick upon. He named a half-dozen Kansas gas belt plants which have been following this plan for months, and said that a market was being found in this city for practically their entire output and that the plants were running on full time and had no stock on hands, thus making it possible for them to produce brick at the lowest possible cost, and they have been paying their dividends regularly and making money, while some of the plants which have adopted the plan of making up a lot of brick and then trying to market them by circularizing the dealers and contractors are not making a success of their business merely because they are not taking the proper care of the selling end of the business. They ought to have the product sold as soon as it is ready to take from the kiln, and they

cannot do this unless they have some one selling for them all the time. If they do not care to maintain such a selling force of their own they should make contracts with some one who is making a business of that end of the work, and thus the brick would be handled with least cost, and the plant could operate at full capacity, thus reducing cost of production. If these plants would take action in this direction it would cause all plants to make more money, for the reason that it would make a market here based upon cost of production and not based upon circulars of plants which had a stock on hands and wanted to reduce it, regardless of cost. While this is the basis of the market at present, it is noted that the plants which are really selling most of the brick are making money, even though the plants making the prices would make no money on their product even if they got the orders. It is merely the difference in the cost of making brick where plants are well and poorly managed. A man may be able to make brick cheap in the plant and unless he has the regular market so he can keep the plant at full capacity he will not make money for the plant. The brick must go out of the plant and make room for others if money is to be made, and this is where the plants now making the money are holding the advantage.

As a market for brick this city is continually growing. The local plants are unable to fill the demand entirely, and outside brick must come in, and the quantity is on the increase, so outside brickmakers should study the situation and get in line for their share of the business at prices which mean a profit.

Common brick are now selling here, on board cars, to customers, at \$6 to \$6.25 per thousand, hauling charges to the jobs extra. The local plants are all busy, and there is every indication that they will continue to be busy throughout the year.

Contractors and architects are reporting the demand on the increase all the time for vitrified or impervious face brick. They are rapidly taking the place of pressed brick in this section of the country, builders preferring a brick which will not absorb water or hold the soot and dirt. Pressed brick are still selling, of course, especially of the fancy faces, as builders in this manner give their houses a distinctive appearance, at the same time there are so many different kinds of vitrified and impervious brick now being offered that it indicates that in the near future the pressed brick will have to take a back seat. A large part of the pressed brick being sold here now are of the common variety, and are not used for face work.

The Bryant Building Supply Company has been trying out a motor delivery for a month or so, but the repair bills are reported to be so large that it does not make a favorable showing as compared with teams. Since the weather has cooled up the teams are able to do more work, and their showing is a good one, and will continue so until the end of the year.

The Pittsburg Brick Company has moved its general offices from the old location in the Scarritt building to the Dwight building.

The Eadie Building Supply Company is reporting its force as unusually busy at this time of year, the September deliveries running up to three million brick. This company has worked up a considerable out-of-town business.

The Pittsburg Brick Company recently found a shortage had crept into its deliveries on various jobs, and in checking up with the contractors and the yards it was discovered that brick had been disappearing between points. Upon investigating the matter it was found that one of the teamsters who had been doing the hauling had made a brick house and paved his back yard with their brick, which he had been diverting from the points to which it was supposed to have gone. Some eight thousand brick were missing, some of them having been reported to have passed into other hands—sold by the teamsters.

K. A. W.

Written for THE CLAY-WORKER.
NOTES FROM DEPARTMENT OF CERAMIC ENGINEERING, OHIO STATE UNIVERSITY.

SIXTEENTH YEAR of the department opened on September 13 under most favorable auspices. The registration of students was completed during the 13th and 14th, and classes began operating on the 15th, and all are now busily at work.

The enrollment this year by classes is as follows:

Seniors	16
Juniors	14
Sophomores	21
Freshmen	16
Short courses	8
Total	75

This shows a slight falling off from the enrollment of last year, which is not unwelcome, as the facilities have been undesirably crowded for several years past.

The instructional force at the university this year has been changed considerably. Professor Orton is back from his year's leave of absence. Unfortunately, he was not able to carry out the program that he had mapped out for himself in any important respect owing to severe illness among his family. He was unable to go abroad as he had planned, and the destruction of his cone factory and clay-testing station on the last day of 1909 compelled him to abandon other plans for travel and study in the United States, except for a trip to the Pacific coast in 1909 and one to northwestern Canada in 1910.

Professor Orton having been elected dean of the College of Engineering a year ago, now takes up his duties in that connection. He still retains his position as head of the Ceramic Department and still gives instruction in the junior lecture courses on Ceramic Engineering, and may possibly give some other class work.

Professor Ross C. Purdy, who was acting head of the department last year, and who carried the work through with splendid success, this year takes charge of the laboratory courses in Ceramics, together with the lecture course on Cement. The large amount of work planned for the laboratory course of the senior year makes the conduct of the course quite arduous for the instructors. In addition to the work of the department, Professor Purdy is working on an important bulletin for the Geological Survey of Ohio on the manufacture of whiteware, and has organized and is carrying out an exhaustive series of tests on whiteware bodies and glazes to accompany his report. In addition to this task Professor Purdy has been recently elected secretary for the Alumni Association of the university and is showing his accustomed energy in injecting life into the affairs of the organization.

Professor H. F. Staley begins his second year in charge of the chemical laboratory of the department. He carries the sophomore chemical courses and the junior courses in the application of physical chemistry to silicates. Professor Staley has put in a busy summer as expert for a large enameled iron concern in Mansfield, Ohio, and profited very greatly from the experience. He found himself able to assist the firm in the elimination of their troubles, although the line of enameling was quite different from any in which he had previously worked. He is still acting as consulting chemist for another enameled iron factory in process of development in Columbus.

Mr. W. G. Worcester, who was connected with the department as instructor for the last three years, resigned during the current summer to take charge of the Detroit Roofing Tile Company at Detroit, Mich. Mr. Worcester is a well-known specialist in this field. He has been working in collaboration with Professor Orton on a bulletin of the Geological Survey of Ohio on the Manufacture of Roofing Tile. This bulletin is now in type and will probably be ready for distribution

during the current fall. While by title it deals with the roofing tile industries of Ohio, as a matter of fact it is a treatise on the manufacture of roofing tile in general, and there is no doubt but what it will be held as a valuable addition to the literature of the clay-working industries. Mr. Worcester will be greatly missed in the department, but his friends are all glad to see him placed in an important position, where he will be certain to find an opportunity for his technical knowledge and skill.

To supply the loss of Mr. Worcester two new men have been brought into the department. Mr. Carl B. Harrop, E. M. ('02), a graduate of the Department of Mine Engineering, who has had extensive experience as a member of the firm of The Richardson-Lovejoy Engineering Company of Columbus, and who has been their head draftsman and designer for a number of years, and who also has had experience with the Jeffrey Manufacturing Company of Columbus for the past two years in their chain elevator and conveyor department, now enters the university with rank of instructor, and will carry the courses in Ceramic Design. His classes will be carefully trained in drawing, designing and estimating the cost of ceramic plants of all sorts, and this step is undoubtedly a great improvement over any arrangement which the department has ever been able to make.

The other appointment is that of Mr. Amos B. Potts, of Trenton, N. J., who is a senior student in the department this year. Mr. Potts is an expert mold maker and has had eight years' practical experience around the whiteware potteries. He has been appointed as laboratory assistant to Professor Purdy, and will give one-half of his time to assisting Professor Purdy in the supervision of the practical work of the laboratory courses in glazes and body making. Mr. Potts' personal skill in the handicrafts of pottery manufacture will undoubtedly be of great use.

The increase in facilities of the department has gone on steadily for the last several years and the funds expended during the last year have now been realized upon in the installation of new kilns, new grinding machinery and in important improvements in working facilities and tools in all of the laboratories except the chemical. The latter was so completely installed in the beginning that there has not yet arisen a need for the extension of its plant.

The Ceramic Library is now being installed in the School of Mines building. This step was begun last year by Professor Purdy by bringing over some fifty books on Ceramics from the Library building and placing them in the reading room of the department. Permission has been granted to complete the process of transfer, and the entire Ceramic Library will now be where ceramic students can get to it between classes and use their time to the fullest extent. The library of the department now includes about 400 volumes, including full sets of Brick and Clay Record, and full sets of THE CLAY-WORKER from 1891. Earlier volumes of THE CLAY-WORKER have not yet been secured. Any friends of the university who can assist in closing the gaps of our volumes in the earlier numbers will confer a favor by getting into correspondence with Professor Orton. In addition to the volumes of the American clay trade journals, the foreign journals, English, French and German, are well represented, though the volumes are not complete in any of the foreign series. Any one who has a complete set of any of the following journals and who cares to part with it can correspond with Professor Orton, viz: The British Clayworker, The Pottery Gazette, The Ton Industrie Zeitung, Deutsche Topfer und Zeigler Zeitung, Sprechsaal, Keramische Rundschau and La Ceramique. Library facilities in ceramic technology at the Ohio State University are probably superior to those of any other library in the United States, not excepting the Congressional Library in Washington.

The foregoing statements indicate that technical education in the ceramic field is well equipped and proceeding with most satisfactory prospects for success at the Columbus school.

Written for THE CLAY-WORKER.

THE CERAMIC DEPARTMENT OF THE UNIVERSITY OF ILLINOIS.

With the beginning of the college year the department occupies its new quarters in the Ceramic Building, which represent a great improvement upon the old laboratories in Natural History Hall. Some additions have been made in the equipment, and the efficiency has been correspondingly increased. The students have entered enthusiastically upon their year's work. The attendance is forty in the regular ceramic courses. Some changes have been made in the teaching force. The place of Professor Rolfe, director of the department, has been taken by Mr. A. V. Bleininger. Professor Rolfe asked to be relieved of his duties in this connection, owing to the fact that as head of the large department of geology his time is fully occupied. Mr. Stull remains with the ceramic department, but Mr. J. M. Knote has resigned to take an important position with a well-known Pittsburg firm, the Pittsburg Testing Laboratory. In the laboratory and instruction work Mr. E. T. Montgomery, a graduate of Ohio State University, acts in the capacity of assistant.

A number of bulletins have been issued by the department, dealing with the manufacture of enameled bricks, the composition and electrical resistance of porcelain bodies, a study of the dehydration of clays, and experiments dealing with the opacity of boric acid glazes. These may be had by applying to Director Bleininger.

Written for THE CLAY-WORKER.

CONNECTICUT BRICK NEWS.

ACCORDING to apparently reliable information the total output in Connecticut this season will approximate 175,000,000. The various plants in the Berlin-Elmwood district together have made about 80,000,000. These plants are in an association. Independent plants outside of this organization have made about 75,000,000, and the yards in the vicinity of Hartford have made 25,000,000, or possibly more.

In and around Berlin the product is handled by a selling agency, which operates under the name of the Central Connecticut Brick Company. Its headquarters are at New Britain and all the brick in the Berlin-Elmwood district is sold through its offices. Elsewhere through the State manufacturers take care of their own sales.

The growing manufacturing cities which cover Connecticut take a considerable proportion and the surplus goes to Providence, R. I.; Boston and New York. It costs \$1.80 per thousand for transportation charges to Boston and \$1.50 to New York. The New York market must be equal to or more than \$7.00 to make shipping to Boston profitable and better than \$7.30 to make New York shipments worth while. Not many Connecticut brick have gone to New York this season, the price has been too low.

The quality of Connecticut brick has always been good, and some contractors prefer them to others. The fact that they are so far from the big centers makes it necessary to obtain big prices, and that has restricted the sale to some extent. Probably the Connecticut manufacturers' best market is close at home. All the lively manufacturing cities are growing rapidly and the high cost of wood is influencing builders to use brick as a moderate priced but excellent substitute.

In the construction of factories this is particularly true. Nearly all the new ones of any importance built during the past two or three years have been of brick. Cement and concrete have not found many friends in that conservative New England State.

If you can do so conveniently, it will not do any harm to attend some of the state conventions of retail lumbermen. Some of them sell clay products, and others might if their attention is pointed right.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



MANUFACTURERS have not yet closed their plants in New Jersey, but most of them are burning their last arches and will close down before very long. The quantity left on hand cannot be estimated. Makers have thus far supplied no figures. The season has been good

all over the State, and while there will be a liberal surplus, the quantity probably will be less than it has been for some years.

Hackensack River brick goes in with New York and is selling at the same price now, \$5.25 to \$5.50.

Raritan Rivers are quoted at wholesale in New York at the same figure, but if bought from the yards about Newark they are quoted at \$6.75. The supply is ample, but the surplus will not be large.

The Hackensack makers have the last arches of the sea-

stalled about the plant. A large motor-driven rubbing bed is being set up and work will shortly be started on an addition to the fitting department and increased shipping facilities.

This company has been busy all the year and has fitted out a number of important buildings, including the Firemen's Insurance building at Newark, the tallest office building in the State; the National Bank of New Jersey at New Brunswick; the Chemistry building and the Engineering building at Rutgers College and the new high schools under construction in Newark and Passaic. These last two buildings took nearly \$100,000 worth of architectural terra cotta of the very highest grade.

The Trenton potters appointed a committee to meet a committee from the National Association of Operators to consider the wage scale. The object is to formulate a new agreement to take the place of the one about expiring. The men ask an increase of 10 per cent. on some of the lower grades of work, the object being to have the wage scale uniform. The potters have formulated an answer to this and it now remains for the two parties to get together on the question.

The manufacturers' committee consisted of John Maddock,



Birdseye View of the Duffney Brick Plant, Mechanicsville, N. Y.

son burning, and in most instances their stocks are low. It is impossible to obtain any estimate of the output or the surplus, but apparently it will be more conservative than usual. The yards have not been operated to their full capacity through the season. Some have run low, with the result that Hackensack brick may be higher next spring.

The Raritan River plants have operated at practically full capacity, chiefly because they have had orders which have kept them busy. Nearly all have sold their output as fast as it was made, and the question of surplus has partially solved itself. In some instances it is understood that they have no surplus. In others there will be some left over, but the quantity will be relatively light. This will put manufacturers upon a substantial basis and guarantee good business in the spring.

The South Amboy Terra Cotta Company is enlarging its factory and increasing its equipment. A new engine and mill building is to be erected and a heavy power equipment, including a tandem type 175 horse power Corliss engine, grit and pug mills and numerous other improvements will be in-

James Dorety and H. S. Maddock, composing the regular standing committee, and John A. Campbell, Walter Lyons, Samuel Bidson, Arthur Plantier, of Trenton; William Coxon, Kokomo, Ind.; George W. Bowers, Warrington, W. Va.; H. F. Weaver, Evansville, Ind.; M. Dobbins, Camden; J. Rhead, Philadelphia.

Architectural terra cotta manufacturers throughout the State report good contracts for their products, with sales increasing each week. The growing use of terra cotta in building construction and the steady development in the excellence of the product have combined into a powerful influence in increasing trade. The relative cheapness is an important factor which adds to its attractiveness and has much to do with increasing trade. Apparently it is the coming material for certain classes of construction and for ornamentation on other classes. Builders prescribe it and architects recommend it wherever it can be utilized in the construction of buildings of all sorts. Most of the firms now making architectural terra cotta are in position to supply almost any demand that can be made upon them.

A. L. B.

Written for THE CLAY-WORKER.

ONE OF HUDSON RIVER'S FINEST BRICK PLANTS.

THE DUFFNEY BRICK YARDS, located at Mechanicsville, N. Y., make only sand mold brick. Mr. Wm. H. Duffney, the president of this company, is one of the most successful brickmakers in the Eastern States, beginning his career when a boy in the yards, gradually advancing, until 1894 he was foreman of the only brick plant then in Mechanicsville. At that time they used the vertical machine, preparing the clay in tempering pits, drying in racks and pallets, running only during the summer season; in the spring of 1894 a new plant was contracted for by Mr. Duffney's company, which was the first brickmaking plant of the kind on the Hudson river. It was erected under a guarantee to make 33,000 brick per day of as good or better quality than made in the old plant. Mr. Duffney now admits that better results were obtained than guaranteed. The capacity the following year was increased to 35,000 per day and so on until 42,500 brick were being made and dried in eight hours; this without any additional outlay for machinery or equipment.

the clay is dumped one man shovels the required amount of sand and coal dust into the granulator, distributing it over clay already in the machine. By the time this cartload has reached the discharge end of the granulator, all is thoroughly mixed together. From the granulator the clay passes through the disintegrator set on the rear end of the horizontal brick machine, the clay is ground and mixed in passing through the disintegrator. The pug mill of brick machine is horizontal, twelve feet six inches long. In passing through the pug mill and machine the mass is again thoroughly mixed and tempered. The molds are filled by an outside vertical press; this insures straight and square brick with every mold perfectly filled. The brick are dumped upon wooden pallets, which are placed on rack cars holding 432 brick each, as illustrated, showing the loaded car and the kind of brick made.

The loaded car of green brick is then placed in a Standard dryer. This dryer is of the latest style made by the Standard Dry Kiln Company. There is ten tracks for each machine. In the old style Standard dryer formerly used it required continuous steam for twenty-four hours; with the new design only twenty-one hours' steam pressure is required to



A Wealth of Raw Material in Duffney's Clay Bank.

In 1897 Mr. Duffney resigned his position as foreman and the Champlain Brick Company was organized, with Mr. Duffney a small stockholder and general manager. One machine and dryer, with power, was purchased from Potts & Co. In 1902 this plant was increased by the addition of another Potts machine and Standard dryer, making the daily capacity 85,000 brick. In the fall of 1909 Mr. Duffney disposed of his interest in the Champlain Company. With this and the money saved he organized the Duffney Brick Company, he being president, his son superintendent, as well as secretary and treasurer.

This new company purchased an ideal location, the clay being the best in this section, laying in a hill directly back of the plant, as shown in accompanying photo. The top is covered with six feet of sand; under this is ten to twelve feet of yellow clay, followed by a blue quicksand clay in layers, separated by streaks of quicksand. The clay is taken by cart (four being used) to the machine house, where it is dumped direct into a granulator; the sand and coal dust being used is dumped separately, one on each side of this granulator. After

dry 42,500 brick. The dry brick are taken from the dryer to kiln without extra handling or wheeling, thus protecting corners and edges and tossed to setters. The kilns are old styled cased kilns set 156 wide and 55 high. They are burned with wood in six to seven days. The kiln shed is 500 feet long and 83 feet wide. The machinery equipment, consisting of two granulators, two disintegrators, two horizontal brick machines and two mold sanders, was furnished by C. & A. Potts & Co., Indianapolis, Ind.; the twenty-track dryer by the Standard Dry Kiln Company, of Indianapolis. Capacity of plant, 85,000 brick in seven and one-half hours every day in the year. They employ seventy-one men, including office force. This is without doubt one of the best and most modern brick plants on the Hudson river. If there were only more like them the writer is sure it would not be necessary to spend the large sums of money now being done to boost high-priced brick. Such brick as are made in this yard will make a building any one can be proud of. The sand-molded brick, well and carefully made, makes a building material

that, when properly laid in the wall, cannot be beat in beauty and finish. The Duffney Company has no difficulty in disposing of every brick made without any cost for expensive advertising or traveling expense.

BRICK TAKE THE PLACE OF CEMENT IN NEW YORK.

PROBABLY no locality in the entire country is developing as rapidly as the suburban district about New York. Radiating in every direction from New York, all sorts of buildings are going up with incredible rapidity, and every indication points to a continuation of the present expansion of building operations. The extension of transit systems and the establishment of new lines are responsible for this,

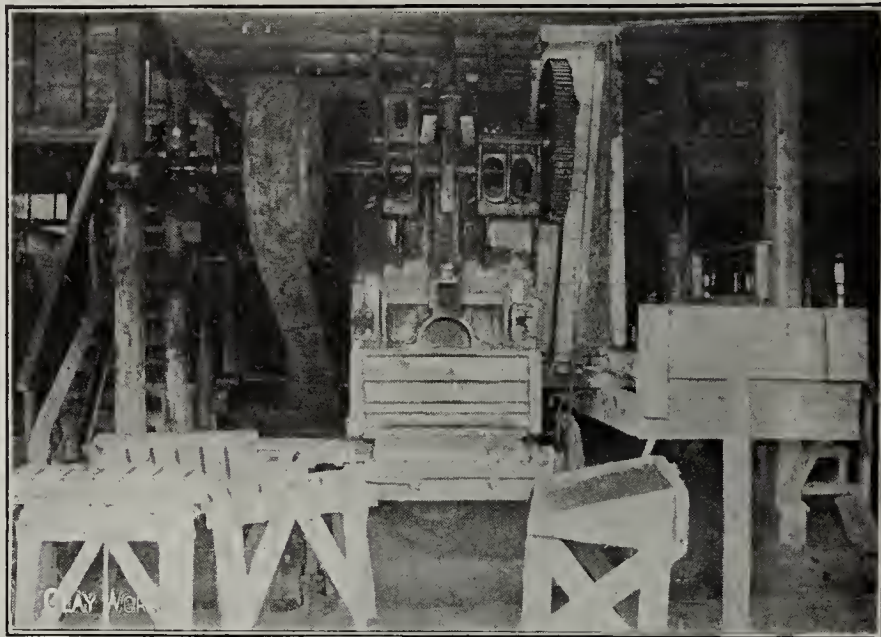


The Office of Duffney Brick Company.

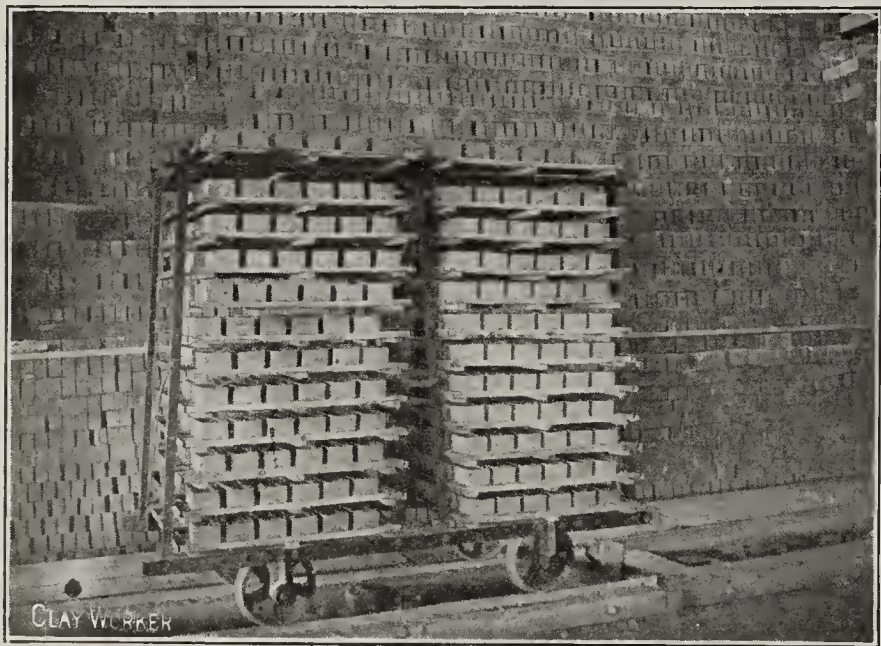
THE POWER OF ADVERTISING RECOGNIZED.

THERE IS A BIT of comedy or by-play being enacted in the lumber world today that is unintentionally paying hostage to the power of advertising by the people who heretofore have not done much of it themselves. It is an incident that is of more than passing interest to clayworkers, too, because it has to do with building materials and methods of pushing them.

For some years now the promoters of composition and patent roofing of one kind and another have carried on extensive campaigns of advertising and as a result have captured a lot of trade that probably should have belonged to the shingle men. Anyway, the shingle men of the West have



Front View of Potts Horizontal Machine.



Dryer Car Loaded with 432 Brick.



Setting Brick 156 Wide, 55 High.

and many improvements in these lines are projected for the coming year.

Two or three years ago a craze began for cement houses, and a good many were built, but during the season just closing less cement has been used proportionately, and brick has to a considerable extent taken the place of concrete in the work now going on or which has been finished through the summer. The relatively low price of brick has done much to encourage the use of brick in constructing new houses.

The publicity campaign of the Building Brick Association will help in the development in seasons to come, and it looks now as though brick would gradually come into its own again. All materials entering into the erection of new houses are so expensive that brick at the price they have been selling this year seem moderately low priced. The coming season promises better things than for a number of years.

felt the loss of this trade, so at a recent meeting of the Pacific Coast Shippers' Association, in which red cedar shingle manufacturers are quite prominent, that body went on record as opposing advertising and publicity given to patent roofing in the lumber journals and instructed the secretary to so notify the said journals.

The secretary did his duty, and thus came on the second act of this comedy.

Some of the lumber papers pointed out that they had known single patent roofing concerns to spend \$3,000 for one insertion in the Saturday Evening Post and spend more money in the lumber journals than all of the shingle people combined, and while they did not come out and say it plainly, the fact was hinted at that the shingle people might better have been spending some of their energy and money in adver-

tising in the past than in protesting after other people that have advertised and got their business. The shingle people who had refused to recognize any value in advertising in their journals for trade building for themselves, unconsciously gave full recognition of this power when they protested against the advertising of the competitive materials that have made wonderful progress in their field by a heavy campaign of advertising both in journals and by getting out booklets and other literature.

There are really two lessons in this, and lessons that may be applied to other things besides the roofing material business. The first one, of course, is an object lesson in the power of advertising, and the other lesson is contained in the fact that by a widespread campaign of shrewd advertising on the part of the patent roofing people and through the neglect of the same opportunities by the shingle people this patent roofing was undoubtedly spread out over too much territory and invaded fields where it has but little business and but little chance for permanency. It is easy to understand and to realize that there are different conditions of roofing requirements. Some in which a composition roofing is almost imperative—flat roofs and things of that kind—but the roofing that is good for this and necessary for work of this character is not always good for the same class of roof that heretofore has had shingles and things of that kind. In other words, in their campaign of advertising the roofing people have spread out and covered too much territory and the final result will be a receding from part of the field, especially if others push their products. That is, if shingles, tile and other roofing material people that supply the proper stuff for roofing will do their part of the work.

There is something in all of this that reminds us of concrete and its campaign of advertising, its spreading out and claiming too much territory and invading the field of clay products. It is a sort of parallel case, and there is a lesson in this case for the shingle people that ought to be worth something to manufacturers of clay products.

BUILDERS SHOULD LOOK WELL TO THEIR MORTAR COLORS.

While contractors use great care in purchasing most of their supplies, using certain known reliable brands, there is a tendency to overlook the importance of carefully choosing some materials whose selection is worthy of serious thought, and one of these is mortar colors.

This article, perhaps more than anything else in a building, can in itself make an extra cost, or, on the other hand, a considerable saving in construction. A cheap mortar color will not do the work of a good one, as it will require from two to three times the quantity of color to produce a given shade in the mortar, and the saving in first cost is more than wiped out in this way.

Pure ore and fine grinding are what make for strength in a mortar color. The contractor who wants the very best mortar color which his money can buy should be sure to get the genuine Clinton. There are many imitations of this brand on the market and they are often marked "Clinton," but the genuine goods bear a yellow label on the side of the package, near the top, on which is printed the name of the color contained therein and also of the manufacturer, the Clinton Metallic Paint Company of Clinton, N. Y.

These goods are carried by most of the leading supply houses in the country, but if your dealer cannot supply you, a letter addressed to the Clinton Metallic Paint Company, Clinton, N. Y., will have most careful attention.

Every man does not do business with you because he likes you personally, but just the same the personal equation counts, and some times counts for enough to swing the balance for or against success.

Written for THE CLAY-WORKER.

THE POWER OF SENTIMENT.

"HAS ANYBODY here seen anybody making a noise like there was no sentiment in business, or talking about soulless corporations?" said old Fritz, as he buttonholed a group.

"If so, I want to hear about it, because I am loaded with an experience that I want to tell you about.

"You have frequently heard people say that business is business, and no sentiment has a place in it. Also recently our strenuously active and generally admired ex-President has had occasion to explain that there is a difference between sentiment and sentimentality, and to say that the one is good and the other is bad.

"Now, I want to say to you that no matter whether you call it sentiment, sentimentality or working on people's feelings, I have learned something about it that has caused me to take back everything I have said about business being a cold-blooded proposition and logic and law being the power in the world. The real power is sentiment. Now, wait until I tell you about it.

"We had an accident. A man lost two fingers from one hand. It was a rather deplorable affair, but it was plainly the man's own fault. He came onto the job one afternoon drunk, so drunk that it was evident to all those around him, and being drunk, he naturally got reckless, and the first thing we knew, smash had gone two fingers.

"Never mind the details; it is the result I want to get at. He admitted he was drunk. We doctored him up and he didn't seem inclined to lay the blame on anybody, but no sooner did news of his accident get around until some shark of a lawyer that makes most of his living preying on just such things, got him in hand and persuaded him to bring suit for damages for compensation. He brought suit, too. There was no doing anything with him. We might have compromised with him, but as we carry casualty insurance, I passed the matter on to the insurance people, and they sent an adjuster down here.

"Now, I said we might have compromised with him. That is what we did in the end, but it wasn't what I counseled. Since it was a plain case of the man's own recklessness and his drinking, I thought it was simply a gouge on the part of his lawyer for them to stick the casualty company, so I told the adjuster all about it and told him to fight the suit. We had plenty of evidence to win on. Had not only the evidence, but the law on our side.

"The matter went on and hung fire for some time while the adjuster investigated, and then, lo and behold, just before time for the case to come to trial the adjuster came in and told me he had settled with the man for a few hundred dollars.

"It made me mad, and I read the riot act to him. He listened patiently, and when I got through, he said: 'Now, look here, you think you know all about this, and there is no question but what it was the man's own fault that he got hurt. Yet I have had more experience in these things than you have and I know that our best policy was to settle this matter and get out of it without going into court.'

"How in the world do you make that out," I exclaimed, "when we have the evidence and law here as plain as the nose on your face, and the man himself admitted it was his own fault?"

"Let me tell you, the adjuster said. 'I looked into this case carefully. It is just as you say. But here is a man with no means of support except his own work, and he has a wife and three or four children, one of them a baby in arms. And now I want to tell you that no matter how much law, how much fact, how much evidence we may have on our side, whenever that man comes into court with that poverty-stricken family beside him and waves that mangled hand before a jury he will get judgment in spite of all the law in the land. You may call it sentiment, sentimentality or anything you want to, but there is not a jury on earth that would ever give us judgment against him under those conditions. I know this, for I have been through it and I know when it is time to compromise and when it is time to fight.'

ARTISTIC BRICK AND THE TEXTILE PRINCIPLE IN BRICKWORK.

GOOD BRICKWORK is the successful weaving of an imperishable fabric of well-burned clay and cement mortar. It has three artistic elements: Texture, color and design.

Texture.

There is a direct analogy between a piece of woven fabric and a wall of brick. The relative size of the differently colored threads and the distance they are placed from each other determine the texture of the cloth, while the relative size of the bricks, their color and finish, and the distance they are separated from each other by mortar joints, determine the texture of the wall.

Color.

Color is given by blending the shades of the bricks with the color of the mortar joint. The influence of the joint upon the color of the brickwork can be understood when consideration is given to the fact that the mortar joint constitutes from one-tenth to one-fifth of the surface of the finished wall.

Design.

The bond (or relative position of the faces and heads of the bricks as laid) determines the design. These bonds, or brickwork patterns, are standardized and illustrated in every architectural book that treats of brickwork and add immensely to the interest of the wall. By their intelligent employment the architect is enabled to incorporate design into his walls without departing from the structural material.

The average building is seldom subjected to close scrutiny. The larger the structure, the greater the distance from which it must be viewed to see it in its entirety. So, in determining the texture, color and bond of your brickwork, due consideration should be given the ensemble, as seen from a sufficient distance to give an idea of the entire building, rather than any single portion.

Since texture is given a wall by the materials used in its construction and the method of their employment, brick offers many advantages to the architect and builder. It is easy to handle (being made in relatively small units) and its shapes and sizes are varied to suit every requirement. It lends itself to the use of joints of different widths, and combines with its artistic elements a permanency possessed by no other structural material.

Recent developments in brickmaking have produced a range of colors which is remarkable, when it is understood that no artificial coloring enters into their composition. The skilful mixture of different clays, and the various methods of burning them, produce surprising results, and the relative smallness of each brick to the finished wall makes brickwork particularly susceptible to artistic color treatment. In painted surfaces we must necessarily have monotonies. With cement-stucco this defect has the additional drawback of offering a very limited variety of permanent colors, and where stone is used it must be in large blocks which present great planes of a single color.

It is unnecessary to add that brick offers opportunities for design superior to other materials, not only through its ease in assembling colors, but in the facility with which the jointing may be used to accent the pattern we are weaving.

A coarse fabric, with contrasting heavy threads, is chosen when we select a garment which will not show dirt. Why not apply the same logic when we select the permanent garment with which to clothe our habitations? A rough-cast stucco wall tones down through exposure and has elements of beauty even after a long period of use—elements of beauty which would be altogether lacking in smooth plaster. The same may be said of brickwork, which, if given texture by rough-surfaced bricks and free mortar joints, will withstand the action of the weather. If we add the diversified colors which are possible only in brick, we insure life and interest

long after time has toned down the contrasts, and have a fair promise of a graceful old age.

Rough-surfaced bricks have another and extremely important point of superiority in the fact that they maintain their colors even in the strongest sunlight, where smoother-faced materials give back only a glare of white. Color is so important a factor that it seems irrational to spend time and thought in its selection and then reap the benefit only when the sun stops shining.

Following the same precepts in art which have made bur-laps and tapestries replace the satin sheen of glazed wall-paper, and given us Craftsman furniture instead of the gilt and velvet of a generation gone, rough-surfaced brick has an added merit in that it brings its weathered effect out where the weather is. It enables the builder to select stronger gradations of color than would be possible with smoother materials, and blends his work into the landscape, since it gives him Nature's own colorings in which to weave his brick-and-mortar fabric.

The clays of the Middle West are particularly susceptible to the treatment which is necessary to produce the widest variety of shades that harmonize with our verdure. With them we can realize any color scheme desired by the artist-architect. Produced by intense firing, these shades are unfading and unchangeable, the application of the high degrees of heat necessary to develop the richer colors producing bricks of an exceptionally impervious character.

These colors range from rose to a metallic blue-brown, with intermediates of Indian red and umber—from olive to shades between brown and purple. High lights of greenish-gold intersperse with deep wines, and give effects in perfect harmony with Nature's lavish brush on mountain, dale and countryside. Sometimes these richer shades are undesirable—particularly near the shore—and here we recommend the cream-gray tones, running into soft golden-brown and blending into the quiet tints of old ivory.

In order that this newest development in the craftsmanship of brickmaking may be properly identified and prospective users protected from substitution, the identifying mark "Textur" has been adopted, and is applied only to art bricks which fulfill the demands of modern architecture, not only with respect to tone and color production, but to durability under all weather conditions.

There is no doubt but that the use of rough-surfaced bricks is still a new thought in some localities. In the process of evolving a better brickwork some brilliant successes will be made—and some failures. Our experience is at the disposal of those who desire help or guidance, and we will furnish suggestions as to the size and composition of the mortar joint, the proportion of texture and color, the appropriate bond and the choice of contrasts to those who may desire to benefit by the knowledge we have gained in serving "Textur" bricks for important buildings in practically every State in the Union. If furnished with the necessary data regarding the size and character of the building contemplated, the type of architecture and general surroundings, we will suggest the best combinations to give the desired effect.

As a general rule we suggest that "Textur" brick be laid in mortar made in the following proportions: Ten parts sharp building sand, 4 parts gravel ($\frac{1}{4}$ -mesh screen); 2 parts Portland cement; 1 part lime putty, which will give a practical and permanent joint of a neutral gray color.

We sincerely believe that textile brickwork is destined to exert so strong an influence upon American architecture that eventually we will have a better brickwork than any the Old World has ever produced, and to this end "Textur" brick is confidently dedicated.

(Copyrighted, 1910, by Thomas Moulding Company, Chicago, Illinois.)

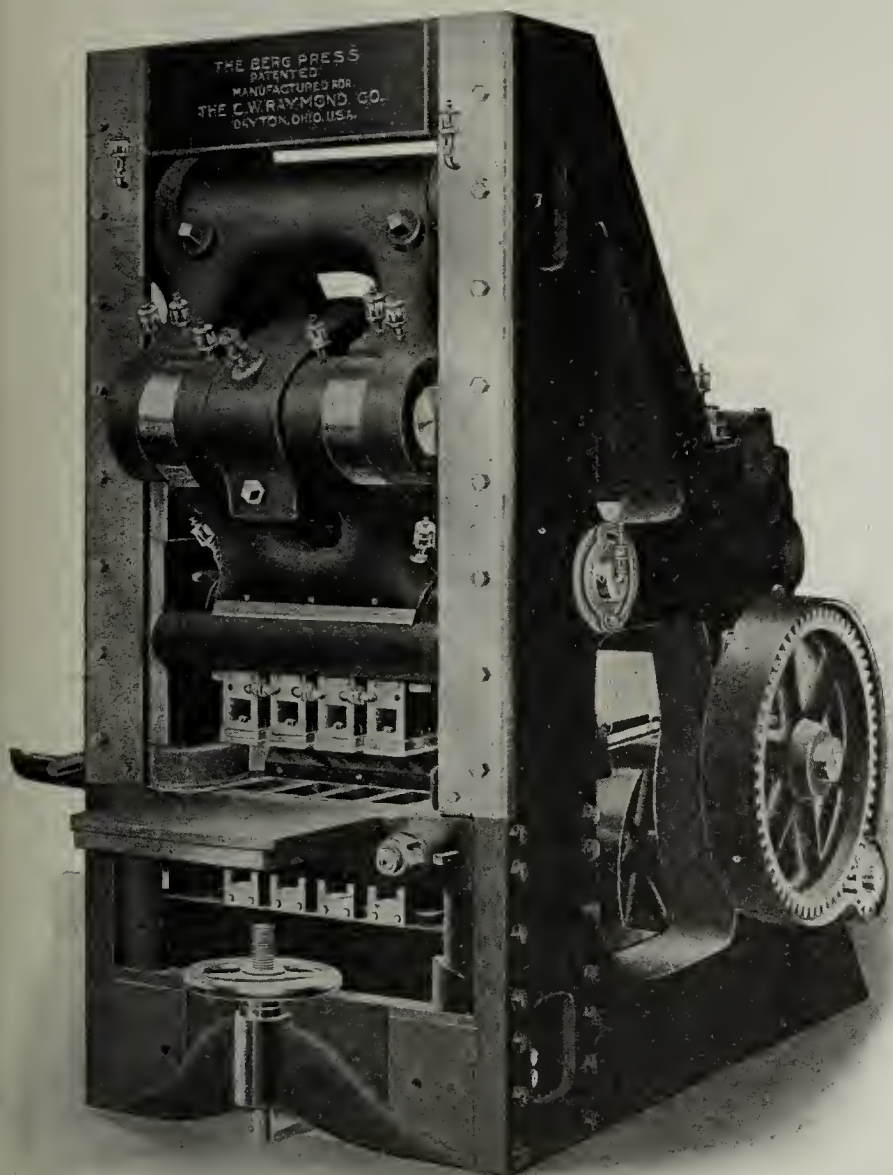
And now they are fixing it so they can't get even near-beer in some of the Southern States.

Written for THE CLAY-WORKER.

THE C. W. RAYMOND COMPANY, EXCLUSIVE SALES AGENTS OF THE BERG PRESS.

MANY INTERESTING changes have taken place in the clayworking machinery world in the past few years, but the latest information comes as a surprise to the brickmakers. The Berg press, manufactured by the Anderson Foundry and Machine Works, is known to all as being one of the most nearly perfect machines of its kind before the trade today.

The machine, with the up-and-down movement of the brick under pressure, its substantial construction and its ultimate strength, as well as the accessibility of all of its parts, were well known to the C. W. Raymond Company when they recently made a contract with the Anderson Company whereby they control its sale in practically the entire United States; and to further the exploitation of this magnificent specimen



The Berg Brick Press.

of machinery they have published Exhibit 2111, which fully describes it, as well as enters into the details of machinery necessary to equip a modern, first-class dry-press plant.

JOHN B. ROSE RENOMINATED.

John B. Rose, of the John B. Rose Company, of Roseton, N. Y., was unanimously renominated for a second term in the State Senate. In the nominating speech his careful, conscientious work as a senator was referred to and the wish was expressed that more men of his type could be found to go to the State Senate.

His work as senator has been marked by the same characteristics which have been so prominently displayed in the development of his own business. The State of New York, nor indeed any State, has none too many such men as he in office.

He will undoubtedly be re-elected and the same excellent

work will follow his re-election. His district is to be congratulated now that he has consented to be a candidate again.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



THE HUDSON RIVER brick yards are closed for the season and the output has ceased. The quantity on hand is approximately 350,000,000 to 400,000,000, but with demand active this is not looked upon as an exorbitant figure and prices are up to \$5.25 to \$5.50 for common and prospect of going still higher during the next two weeks. Demand continues good, with more building going on than at any previous time this year. Contracts are not so numerous, but actual building operations are more active and are better than they have been all summer. A few large contracts are pending, and one, the Irving High School, worth about a million dollars, has just been given out. The future is, therefore, promising.

Much of the failure to give out contracts is due to the attitude of mortgage, building and permanent loan companies. Some have already refused to consider further loft building and apartment house construction in Manhattan, while others are pushing up interest on finished structures in the entire metropolitan district, giving as a reason that dwelling construction has been overdone. Builders for special tenants or for manufacturing purposes have no difficulty in obtaining all the loans they want. Conservatism of this character, so far from injuring the business, will help it in the end.

Part of the month has been disturbed by a strike among the brickmakers of the metropolitan district, which, happily, has been settled and everyone is at work again. There was a time when this strike threatened to involve the building trades and stop all operations this fall. But the disagreement has been adjusted and everything is proceeding now upon the regular basis.

About seventy cargoes of brick arrived during the week of October 10 and the sales were sixty-eight, testifying to the activity of trade, even at higher prices. Conditions are favorable for a continuation of this desirable feature for a time.

Building operations have been benefited by the warm, dry weather, which has been almost unseasonable for the past month. October up to the present writing has had but one shower and the temperature has been almost like August. The effect upon outdoor work has been such that all interests have profited and much work has been pushed along that could not have been done under ordinary circumstances.

For the week of October 1 seventy-two cargoes of brick arrived in New York and sixty-six were sold. The quantity available is at least 100,000,000 more than last year, but the weather has been so good that there are no wash brick in the sheds. They are all of the best quality and will bring outside prices.

It is pointed out by experienced men that building materials are cheaper than at any time this year. This attracts individual builders and exerts an important influence in encouraging the construction of single dwellings or small factories. The demand created by the use of materials thus freely helps the market in various ways. With other materials going up, too, the brick market is considered no more than normal and buyers are not frightened by the present advancing quotations.

BURTON.

FIREPROOF BUILDING CONTRACT.

The National Fireproofing Company, Fulton building, Pittsburg, has been awarded the contract for the construction of two of a group of buildings to be erected at Erie, Pa., for the General Electric Company. Each building will be 800 feet long and several hundred feet wide, and will be absolutely fireproof.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

The Clay-Worker a Necessary Adjunct.

Editor THE CLAY-WORKER:

Please send THE CLAY-WORKER to me for one year. Enclosed please find postoffice order for \$2. I find this step absolutely necessary in order to keep in touch with the clay industry, besides feasting on the many splendid discussions by men who have aided very materially in bringing the manufacture of clay wares upon a scientific basis.

Very respectfully,

Seattle, Wash.

THEO. A. YOUNG.

Land Drainage Column a Benefit.

Editor THE CLAY-WORKER:

Enclosed find check for \$2, subscription to THE CLAY-WORKER, for which please receipt and return.

I have this year annexed drain tile to my brick plant, and am selling them as fast as I can turn them out. Farmers are getting to recognize the benefits of drain tiling.

I have also found your "Land Drainage" column a great benefit to my business. Yours for success,

Millstadt, Ill.

AL J. MARXER.

Brick Business Good in Virginia.

Editor THE CLAY-WORKER:

Yours of the 20th to hand. Herewith please find enclosed check for \$2, with which to renew our subscription to THE CLAY-WORKER. Our business is fine, considering the bad weather that has been with us this season. We are hoping that we can catch up before the season closes.

We have some small pictures of our yard, and will send you prints of them just as soon as we can, and trust that you can judge from them the size of our yard.

Very respectfully,

Richmond, Va.

CHEATWOOD & BLUNT.

The Brick Age.

Editor THE CLAY-WORKER:

Believing this to be the "brick age," and having faith in the greater architectural development of the use of bricks for facing purposes, which we think at present is only in its infancy, we have arranged a display at our new offices which for original and charming effects, harmonious blending of colors and practical suggestions is quite the most pretentious yet attempted in an exhibition of front brick. It would be well worth your while to make even a special trip to see it.

Yours truly,

New York City.

FREDENBURG & LOUNSBURY.

Brick and Tile Plant Wanted.

Editor THE CLAY-WORKER:

Can you put me into communication with parties who will put in a large brick and tile plant here? We have very fine clays suitable for common, pressed and paving brick, hollow tile, drain tile, sewer pipe and terra cotta. This has been proved by numerous tests at various places. I believe I can secure an excellent site, close to track, water, etc., at a reasonable price per acre. There is no plant of any consequence

here now, although there are parties figuring on another location here for a plant to employ about 150 men. There is an excellent opening here. We have railways in all four directions, and this is an important railway point, 254 miles west of Chicago on the double-track main line of the C. & N. W. railroad, also freight division point, etc. Very truly,

Belle Plaine, Iowa.

H. R. MOSNAT.

The Rodgers Dryer at Horseheads.

Editor THE CLAY-WORKER:

We read with much interest the write-up of Mr. Eisenhart's new plant in the August CLAY-WORKER, and were not a little surprised that no mention was made of the fact that the dryer was constructed by the Rodgers Engineering Company, as our company did a great deal of work in connection with the rebuilding of the plant, redesigning it and building the dryers complete. We wonder how the CLAY-WORKER scribe failed to make any mention of that fact. We are rather proud of the plant, the success of which is indicated by Mr. Eisenhart himself in the following interesting letter.

Chicago, Ill.

L. E. RODGERS ENGINEERING COMPANY.

CONSOLIDATED BRICK COMPANY.

HORSEHEADS, N. Y., September 16, 1910.

L. E. Rodgers Engineering Company,

108 LaSalle Street, Chicago, Ill.:

GENTLEMEN—We now have our brick plant completed and in full operation, turning out 45,000 soft mud brick per day, and we wish to commend you for the thorough and practical manner in which you aided us in solving the problem of brick drying for our new plant.

The fireproof dryer you designed is proving a great success. At present we are using only the waste heat from our continuous kiln, which enables us to dry 45,000 soft mud brick every twenty-four hours. The auxiliary furnace you designed we have not had to use much, as we get sufficient heat at present from our continuous kiln.

We appreciate the attention shown us and the services rendered while we were rebuilding the plant, and in our opinion your system is the correct one for drying brick, and the apparatus furnished could hardly be improved upon.

Wishing you success, we remain,

Respectfully yours,

CONSOLIDATED BRICK COMPANY,

R. G. EISENHART,

Treasurer and General Manager.

Real Advertising.

Editor THE CLAY-WORKER:

In reading the September issue of your publication I was interested in the article headed "Are You Really Advertising?" After reading it I turned to page 321 and read our advertisement, or, more correctly speaking, our card. As far as advertising in your paper goes, we are not doing it. We have some very strong facts backing up our products:

First. Our fire clay is the best fire clay in the Middle West for the manufacture of fire brick for building kilns. From actual test our Ajax fire brick has withstood an actual temperature of 3187 degrees without showing signs of even surface fusion. This heat measurement was an average taken from three pyrometers. Our Ajax fire brick has a minimum of expansion and contraction in heating and cooling. They consequently show but a very small tendency to crack or spall off. Our Ajax fire brick is a uniformly hard-burned and full size brick, containing one hundred cubic inches. It consequently does not require as many fire brick in building a kiln as it would if the brick were smaller.

Second. Our organization is complete in all its details, and the head of each department is an expert in his work.

Third. Our plant, but recently completed, is equipped with all the most modern and approved machinery and appliances, and our motto in doing business is "If it is not right, we will make it right."

With all these facts in our favor it would seem that we might secure better results from your paper if we did more than simply advertise "Ajax Fire Brick for building kilns," so

we are going to make a change in our ad. beginning with the October issue. Yours truly,

CHICAGO RETORT AND FIRE BRICK COMPANY,
CHARLES S. REED, President.

Heinrich Ries Work a Text-Book.

Editor THE CLAY-WORKER:

The new edition of "Economic Geology," by Heinrich Ries, Ph. D., of Cornell, has just been published, and it is my opinion that this book, which is thoroughly revised to date, will fill the want of a text-book in technical schools and colleges.

The author has collected a vast amount of new facts, which have been compiled in a very brief but comprehensive form, and the book will, no doubt, receive a large sale, as have other volumes and other titles by the same author.

Copies may be secured from the publishers of this journal at standard price, \$5.

EDWARD C. STOVER,

Treasurer Trenton Schools of Industrial Arts,
Assistant General Manager the Trenton Potteries Company.

Wants Remedy for Whitewash.

Editor THE CLAY-WORKER:

Enclosed please find check for \$2 to pay my subscription for another year. My plant has been undergoing repairs for some time, changing from hard mud brick to soft mud, from soft mud to stiff mud, and after I get it in sound shape I will send you a photograph and history. My father was the first man to burn the big wide kiln.

Where can I get coloring for bricks? My bricks white-wash. I saw something advertised in your journal as a remedy for this trouble. I have been looking for the name of the firm in the last journal, but failed to find it.

Very respectfully,
G. M. COLLINS.

ADVERTISING BRINGS A LANDSLIDE FOR THE B. B. A.

WE HAVE received information from the secretary of the Building Brick Association of America that their initial advertisements in Everybody's Magazine and Saturday Evening Post brought extraordinary returns. These advertisements were only one column wide and four inches high, nevertheless in the first ten days after they appeared 289 letters were received by the secretary, many stating that the writer intended to build very shortly and wanted information why he should use brick in preference to wood or cement. All of these inquirers asked for free literature, and over 70 per cent. accompanied their letters with remittances in payment for the books entitled "A House of Brick for \$10,000" and "House of Brick of Moderate Cost."

The wide territory from which these inquiries were received is surprising and interesting in the extreme for the reason that in the time specified above inquiries were received from every State in the Union with the exception of three. Also a number of inquiries were received from Canada and one from Cuba.

To each of these inquiries has been sent the convincing little pamphlet, "A Revolution in Building Materials," which has been followed with the four small pamphlets on the value and beauty of brick construction.

A weekly bulletin is issued every Tuesday, giving the name, address and occupation (when given) of each inquirer, and any comments from his letter which are interesting. These bulletins are printed on uniform size paper, punched for binding and are sent to each member of the association. No copies are sent to non-members.

These bulletins contain a mine of valuable material for the brickmaker who is seeking new and lucrative markets for his product. The secretary advises us that it has been necessary to hire larger quarters and add several assistants to handle the great volume of business which this advertising is bringing in. The B. B. A. is certainly a success.

Written for THE CLAY-WORKER.

NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE BRICK season, so far as active operations are concerned, is about at a close. The danger of frost in open yards is too great to permit much chance to be taken, and many of the open yards through the country are closed down and have been since the first of the month. Brick men are now viewing the work of the season and figuring out their situation. As a rule

the season has been a much better one than that of the year before. They have gotten better prices right through, and if they have not sold quite as many brick, they have gotten better prices for what they did sell, and have more money. Prices have ranged from \$1.00 to \$1.50 better than they were a year ago with the larger concerns. Some of the smaller yards have been unable to see their way clear to following the upward trend and to securing what was, after all, but a fair price for their product. But with a better appreciation of the situation there has been less eagerness toward cutting into every possible sale. The smaller concerns, who have been inclined to sell their heads off at low figures, have been allowed to do so, while the others simply waited until there was a market for their product at a fair price. The result was beneficial to all concerned, except, of course, those concerns whose eagerness to find an early market led them to take low prices.

The active period of manufacturing is now closed and the stock on hand must serve for the late fall and the early spring demand. There is a slight increase in the volume in hand now, although if the demand during the early part of November should be good, as it may be if fine weather continues, the winter may see no more brick in the yards unsold than was the case a year ago. At this writing the stock in hand is about 15 per cent. heavier than it was last fall. There was a sharp scarcity of building brick during the spring, and if there should be anywhere near as good a demand next spring as there was this year, all will be needed, and at good prices.

As to the possible demand for spring, the present indications for building are hardly as good as they were last spring, due to the greater conservatism which has begun in commercial lines. But there is another feature to be considered in this direction, and that is, the fact that brick are being given greater attention than has been the case heretofore. They are coming more into use, and this will undoubtedly serve to offset, in a measure, the possible shrinkage in general building. Especially this may be the case if the plans for the furtherance of the use of brick through various forms of publicity are carried out as they are expected to be.

The Builders' Exchange of St. Paul has taken up a comprehensive attempt at getting industrial training for the boys, and proposes to afford manual training at a time when it is most effective to the growing youth. It has been found there, as elsewhere, that boys are inclined to leave the grade schools along about the fifth or sixth grades, and so the manual training in the high schools comes too late to help them, even if it were practical, which very often it is not. The new plan, which has been taken up in conjunction with the St. Paul Institute, is to give a comprehensive line of instruction in various lines, any branch of mechanical or architectural and mechanical drawing, in which a class of ten students can be enrolled. The classes opened Monday evening, October 10, and will cover a course of twenty weeks, with two hours on two nights of each week. When the fact became known that such classes were proposed there were applications from three hundred at once, although it is not possible to handle over one hundred at the start. The work is experimental as yet, but it is expected to expand it to include training in all lines, including bricklaying. The Minneapolis Builders' Exchange will be asked to take up a similar line of work in its city, and

there will unquestionably be a serious investigation along the same lines.

The City Council of St. Paul is considering a resolution for the adoption of a comprehensive city plan, to include public buildings, parks and other public interests.

Minneapolis building permits for September were \$1,170,305, against \$1,125,980 for the same month of a year ago. The city has had a consistent gain for the year, although falling behind one month. For nine months the total is \$11,826,620, against \$10,145,020 for last year.

St. Paul building permits for September fell behind slightly, being \$664,763 for the past month, and having a heavy month a year ago to go against, \$1,036,716.

Downs & Eads, architects, Minneapolis, have prepared plans for a three-story brick block for the Lake Harriet Commercial Club, to be erected in a south suburb of Minneapolis. It will be 40x100, and will cost about \$25,000.

Tentative plans have been under way in St. Paul for a fourteen-story office building to house all the clubs and associations of the city which are devoted to the promotion of the city's business activities. Tentative plans of similar nature have also been taken up for an eight-story office building.

Tentative plans have been taken up for remodeling and enlarging the Pittsburg building in St. Paul at Fifth and Wabasha streets.

E. F. Wandersee received the general contract for the erection of the lodge building for Lodge No. 169, I. O. O. F., to be erected on Plymouth avenue and Third street, Minneapolis. Cost, \$25,000. It will be three stories, brick.

P. S. Gray, of Minneapolis, will erect a handsome white enameled brick residence in Lynnhurst, a suburb of Minneapolis. It will be two stories and basement and will cost \$10,000.

St. Joseph Academy, St. Paul, will erect a four-story brick building for a novices' home on plans by J. H. Wheeler, architect, of St. Paul. It will be 145x130 feet in size.

The Puffer-Hubbard Manufacturing Company, of Minneapolis, will erect a set of brick factory buildings in South Minneapolis which will be fireproof. Cost, \$40,000.

The Wells Bros. Company, of Chicago, has been awarded the general contract for the new Lowry Arcade in St. Paul. The building will be seven stories, 50x300 feet, glazed brick and terra cotta exterior walls. Cost, \$700,000. Kees & Colburn, architects, Minneapolis.

A. F. Wasielewski, of Minneapolis, has received the contract on a percentage basis for the erection of a brick and cut-stone church at Pine City, Minn., for St. Mary's Catholic congregation. Cost, \$25,000.

Charles Skooglun received the general contract for the Y. W. C. A. building in St. Paul at \$154,640. C. J. Hohnston, architect.

T. WIN.

MEETING OF NORTHWESTERN CLAYWORKERS.

The Northwestern Clay Association held a quarterly meeting in Minneapolis on October 12 to consider plans for the annual meeting and to exchange views on conditions in general. There was a fair attendance, and considerable interest was shown. The annual meeting will be held some time in January, although the date has been left open to the executive committee in order that there may be no conflict of dates, such as has occurred previously. There was considerable discussion over the question of holding a two-days' convention with more exhibits and having the banquet in the evening of the first day. The opinion was divided upon this matter, and the program committee will be expected to settle it.

There has been something done in the way of soliciting help from the steamship agents toward getting immigrants who are brick masons to consider coming to the Northwest. Some agents were inclined to dodge the matter on the ground of contract-labor prohibition, but the intent is not within the scope of the law, it being merely to inform immigrants who

have actually started for America of the fact that there exists a scarcity of skilled bricklayers in the Northwest.

There was considerable discussion as to means and methods of getting better publicity for the use of brick in dwellings. One suggestion was to take it up with those architects who furnish sketch plans weekly for the Sunday papers and also for the patent inside country papers, and get them to provide occasionally sketches of brick structures, with their estimates. Similar suggestions along the same lines could be inserted in the country papers. This work, if it could be started to be in print during the winter, would be of great worth in the farming districts, for that is a time when farmers have more time to read their country papers closely, and such suggestions would get much better consideration than if they were allowed to wait until closer to spring. The annual meeting of the Northwestern Clay Association in January bids fair to be an exceptionally good meeting, if the plans can be carried out along the lines projected at this meeting.

A KENTUCKY PRESS BRICK PLANT.

JUST ACROSS the Ohio river from Cincinnati is the thriving city of Newport, Ky., the third city in size in "Old Kaintuck." One of the chief factors contributing to the growth and stability of the town is the plant of the Newport Pressed Brick and Stone Company, which turns out



Newport Pressed Brick and Stone Company's Plant.

every year 5,000,000 pressed brick. They have a deposit of shale, 150 feet deep, covering about fifteen acres, which they say will last them fifty years. They expect in another year or so to add a stiff mud equipment for the manufacture of paving brick and hollow brick.

The shale, which is blasted, is wheeled to the plant, where it is ground in a dry pan, after which it is taken to Chisholm, Boyd & White dry presses. From the machine the brick go direct to the round down-draft kilns. They are set thirty-two high, and are watersmoked eight to nine days and the burning finished in from four to six days. They use a smokeless lump coal which costs from \$2.65 to \$3.25 per ton. The brick when burned are 8½x4x2½ and of a deep red.

The plant is all under roof, including kilns. They are not bothered with labor troubles, paying from \$1.75 to \$2 per day of ten hours. While not a large plant, the manager, W. W. Baxter, is quite proud of the factory, and will be glad to welcome visiting clayworkers at any time.

The company had an exhibit at the St. Louis World's Fair, and received a diploma and medal, as well as a request from Director Walcott, of the U. S. Geological Survey, to donate the exhibit to the National Mines and Quarries Museum at Washington, D. C., which they gladly complied with. The company is very fortunate in one respect, for when the clay

and shale is all worked off the property the site can be platted into 160 building lots, which, owing to the location, will be worth from \$600 to \$1,000 each, as the city has built up all around the plant.

The company was organized as a partnership in May, 1902, and in December, 1905, was incorporated as the Newport Pressed Brick and Stone Company. The officers of the company are: Walter Bennet, president; Ed Raber, vice-president; W. W. Baxter, secretary-treasurer and manager; Geo. Bennet, L. C. Raber, W. W. Baxter, F. B. Bassmann, George Dorne, Ed Raber, H. E. Engelhardt, directors.

BUILT-RIGHT RUN-RIGHT MACHINERY FOR CHINA.

The accompanying illustration shows a carload of high-class brickmaking machinery loaded at the Bucyrus plant of the American Clay Machinery Company for shipment to China. This machinery was securely crated for its long voyage. The shipment included one No. 41 Auger brick machine, with dies; one No. 25 rotary automatic cutting table, one Eagle repress, one No. 51 pug mill, one eighteen-inch disintegrator. This plant will be installed by Y. J. Choy, near Hong-Kong, China. Mr. Choy has laid the foundation for a



Order of American Clay Machinery Shipped to China.

successful business enterprise by investing in the very best clayworking machinery.

THE BEST IS THE CHEAPEST.

It is a pretty well accepted theory today that the building contractor's main profits lie in his savings on the labor item. The employment of labor-saving machinery at every practical point has been the foundation of America's splendid achievements in the building arts. Now we are commencing to turn our attention to the labor economy in materials as well as in handling devices. It may be possible with good care and labor to get fair results along certain lines with mediocre materials, but when first-class materials cost but a fraction more and assure perfect results with a minimum of effort, the labor-saving item is practically certain to outweigh the difference in first cost. Take mortar colors as an instance. It may be possible with poorly ground, uncertain colors to get passably good results, but the time and supervision required during the mixing process run up tremendously when compared with that required when using a strong-toned, finely ground color like Ricketson's "Red Brick" brand. And when finished the non-standard colors are more than likely to crock

or change shade in anything from a few months to a few years, while "Red Brick" colors are absolutely stable. "They never fade."

Samples of the five shades—red, brown, buff, purple and black—will be sent upon application to the Ricketson Mineral Paint Works, Milwaukee, Wis.

THE GOVERNMENT CLAY PRODUCTS LABORATORY UNDER THE BUREAU OF STANDARDS.

DURING the last days of the past Congress the Structural Materials Laboratories at Pittsburg, which deal with the investigation of steel, clay, stone, concrete and other building products, were transferred from the Technologic Branch of the U. S. Geological Survey to the Bureau of Standards, with an appropriation of \$50,000. While there is a difference of opinion among the manufacturers of these vast industries as to whether the step was a wise one, whether it would not have been better to have included this work, together with the other mineral industries, under the jurisdiction of the newly established Bureau of Mines, the fact remains that Congress, under the urgent pressure exerted by Mr. Tawney, has taken this action. At the same time it is also apparent that the sum appropriated for this purpose is woefully small, and it is evident that the share of attention which can be given under this appropriation to any of the structural industries is bound to be very limited.

As far as the clay industries are concerned, it does not make any material difference under which bureau the work is carried on, provided it is in the hands of men familiar with the needs of our field, both from the strictly practical and the more advanced theoretical standpoint.

The Bureau of Standards, which was established primarily for the precise measurement of physical constants, similar to the function of the Royal Physical Laboratory of England and the Reichsanstalt of Germany, in undertaking this work, must adapt itself to the industrial needs without losing sight of the scientific possibilities to be developed in this line of endeavor if it wishes to be successful and desires the co-operation of the industries. Important as scientific work of high grade is, it is almost impossible for theoretically trained investigators not in intimate touch with the industries to be of the greatest service to the interests they are aiming to serve. What we need is the type of worker represented by the highly trained American metallurgist, or investigators of the type of Seger. If the Bureau of Standards realizes this fact, it should have the hearty support of all the clay industries, and, together with the other structural interests, they should demand from Congress an appropriation commensurate with the importance of the work, so that the clay laboratory will not be compelled to struggle along with a mere pittance, as it is doing now. An appropriation of \$150,000 is certainly not excessive for the adequate support of laboratories devoted to the study of American structural products ranging from steel to clay, concrete and stone.

From what has been learned, the Bureau of Standards is very desirous of doing justice to the clay industry, and hence should receive our encouragement in the difficult undertaking of building up the structural testing station at Pittsburg. Mr. J. E. Howard, familiar to our convention gatherings as representative of the Watertown arsenal, has this year been appointed general testing engineer with the Bureau of Standards, and we may rest assured that, as far as he is concerned, the brick industry will receive close attention.

The director of the bureau, Dr. S. W. Stratton, has repeatedly visited the Pittsburg Clay Products Laboratories, and has expressed himself very favorably with reference to the work as it has been carried on. Immediately after the transfer Mr. A. V. Bleininger was placed in charge of the entire structural plant at Pittsburg, the clay products section having been thus recognized in signal fashion. Mr. Bleininger held this position until he left for the University of Illinois, with which institution he had been under contract for some time.

Mr. Harrison E. Ashley has been placed at the head of the Clay Products Section. With his thorough training and practical experience, we can rest assured that the work is in safe hands.



OFFICIAL ANNOUNCEMENT.

Twenty-Fifth Annual Convention of the National Brick Manufacturers' Association, to Be Held at Louisville, Ky., February, 1911.

BECAUSE OF ITS central location and consequently its accessibility to a large majority of our members, Louisville has been chosen for the twenty-fifth annual convention of the National Brick Manufacturers' Association, to be held early in February. The exact date will be announced subsequently.

However, it is not location alone that has led to the selection of the Kentucky metropolis. A combination of advantages has influenced this choice, chief of which is the Seelbach Hotel, which offers unexcelled facilities for our meetings, including convention hall for the N. B. M. A. and adequate assembly halls for each and all of the affiliated organizations. It affords every desirable convenience and facility for such a gathering. Its banquet hall has few equals and its rathskellar is a dream in Rookwood faience of which any clay-worker may well be proud.

Many of our members have expressed a desire to go South this winter, and Louisville being the gateway to the South, will enable them to do so after the convention and enjoy the best through service, assuring every convenience and comfort. If a sufficient number desire to make a trip to New Orleans, Jacksonville or other Southern points, a special party will be arranged for. Those interested are requested to communicate with the secretary in regard to same.

Doubtless all who attend the convention will want to visit the famous Mammoth Cave, the marvelous natural subterranean cavern, which is justly considered one of the world's wonders, so a side trip to same will be arranged for. The cave is situated some ninety miles south of Louisville on the L. & N. railroad, and a special train will be provided, insuring a comfortable as well as an interesting and instructive outing. This side trip alone will well repay a trip across the continent.

Ample facilities will be provided for all the affiliated bodies and for the display of specimen brick and other clay ware, machinery and appliances. All in all, the choice of Louisville will prove a very happy one, and it is confidently predicted that a record-breaking crowd will assemble there at the appointed time. The members are invited to suggest topics for discussion and subjects for formal papers touching on any and every phase of the business in which they are interested. Those desiring to join the association or wishing information relative to the requisites of membership are requested to address the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

WILL P. BLAIR, President.

THEO. A. RANDALL, Secretary.

It will be a matter of general interest and gratification to those of our readers who are interested in the clay industry in the Eastern States to know that Mr. Karl Mathiasen has been honored by the government of Denmark, having been

notified by the Danish Ambassador that his Majesty, the King, has created him a knight of the Order of Dannebrog, a high Danish decoration. Mr. Mathiasen is president of the New Jersey Terra Cotta Company, Matawan Mosaic Tile Company, Keyport Tile Company and Raritan Brick Company, also a publisher of a Danish newspaper, "Nordlyset," having a large Eastern circulation. Mr. Mathiasen is a Dane by birth and has been identified with charitable work for many years.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.

IN THE BUILDING line, business in Chicago is taking a decided pick-up as autumn advances, and more than one big enterprise is coming to the fore.

The most monumental plan now attracting attention is that for the erection of a twenty story office building, which will reach an outside total of about \$6,500,000 in cost, and which will occupy the entire block bounded by Jackson boulevard, Fifth avenue, Sherman and Van Buren streets. Daniel H. Burnham, the well-known Chicago architect, and a number of associates are the promoters of this building, and the real estate end of the transaction alone has made more of a sensation in realty circles than any deal that has ever been recorded in so-called "Loop" property. The skyscraper will have a frontage of 200 feet on each of the four streets and will equal in size the famous First National Bank building of Chicago. The land is being purchased outright in spite of the necessity of buying up several leaseholds. This will take \$2,100,000, while the structure itself will take upwards of \$3,675,000, all exclusive of architect's fees and carrying charges.

No details on character of construction have been made public as yet, but it is almost a certainty that the example of most of the modern downtown buildings of Chicago will be followed and especial attention paid to the artistic character of the new skyscraper by using brick for the exterior finish as well as for the "inward necessities."

The promotion of this building by Mr. Burnham, the "Greater Chicago" City Plan expert, is additional and by far the most convincing proof yet given that the loop boundaries cannot much longer confine Chicago's large and expensive buildings.

Still another building has been started on the University of Chicago campus with the Harper Memorial Library building still under way. This is the \$100,000 addition to the Rynerson Physical Laboratory. This addition, like the original building, is the gift of Martin A. Rynerson, president of the board of trustees of the University of Chicago. The building will be three stories high. While the university buildings are all of stone exterior, presumably out of deference to ancient traditions of the Old World school structures which they strive to imitate, the amount of brick and fire-proofing used in interiors and the distinctive red tile roofing make them of interest to the maker of and dealer in products of clay.

While September building in Chicago was not astonishingly good, measured by the standards of a year ago, nevertheless it was more than fair, and the figures for the month show Chicago well in the van with the other large cities of the country. All over the city building is fairly active, structures of all kinds, apartments, single dwellings, churches and church schools and institutes, business houses and even theaters making up a very considerable total, even if the great record of last year and the year before is not to be broken. With promise of a reduction in structural steel building ought to continue good in the downtown district during the winter unless serious labor troubles intervene.

SCRIP.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

IF STATISTICS show the true condition of affairs, and no doubt they do, then the clayworking industries of the Puget Sound section are to be pitied for the poor showing they have been making in connection with building operations. From the just published reports of the U. S. Geological Survey we learn that Seattle has attracted national attention on account of its building operations. First, that Seattle occupies first place in number of wooden buildings erected in 1909, and, second, that it occupies second place in number of concrete buildings. It is certainly a mighty poor showing for the clayworker. That wooden and concrete building has kept pace with the former records is shown again by the records established for building permits in Seattle for the month of September. The value of the permits for September amounted to \$1,849,395, which is the record for monthly values during the present year. It is the record for any September month's building in the past, and with the issuance of a permit for \$1,250,000 for the new department store of the Bon Marche, it established a record for the highest individual permit ever issued in Seattle.

Several new building plans have been spoken of. The theatrical firm of Klaw & Erlanger will erect a new theater; they have secured a site of the Metropolitan Building Company, and Stone & Webster Engineering Corporation will probably erect the new building.

The plans for beautifying the city are now well under way. The Municipal Plans Commission has secured the services of Virgil Bogue, of New York. They will pay him a compensation of \$1,000 per month, and the job will last eight months to fully complete the plans. City Engineer R. H. Thompson is the chairman of the commission, and the plans will be followed along the lines of the improvements which he has made so far.

The situation among the brick yards is not very encouraging. The rainy season has set in since the last ten days and has curtailed to some extent the manufacturing of brick. Brick has been sold at a very close margin, and prices have been very low. Some brick has been sold as low as \$6.50 on board of scow at the yards.

The Lake Union Brick Company has burnt their Youngren continuous kiln, but have not been successful so far to get a good brick. The lack of experienced burners to handle this type kiln in this section is one of the drawbacks of this problem.

The Ballard Brick Company has burnt their new square down-draft kiln, and the results have been good. A good hard brick has been burnt, and the yard will be operated again in the spring.

Dr. Heinrich Ries, the well-known clay expert, visited this section on his way back to Ithaca. Dr. Ries has been working all summer for the Canadian Geological Survey gathering field notes and inspecting the Canadian clayworking plants.

Walter C. Mitchell has returned to Seattle from his Canadian investigation trip. He has found several good localities for brickmaking plants, and also extensive clay beds on Mayne Island. A company is now forming to build and operate a plant on these clays.

SIWASH.

CHAMBERS BROS. BUILDING AN ADDITION TO THEIR FACTORY.

During a trip East the latter part of September THE CLAY-WORKER representative paid a brief visit to Chambers Bros. Company, Philadelphia, Pa., and found J. Howard Chambers, general manager of the company, very busy overseeing the work of building the new addition to the foundry at Fifty-Second and Media streets. In this new part, which is lighted on three sides with immense windows, will be located the offices and fireproof vaults for storing patterns and drawings and a large drafting room. The entire addition is fireproof throughout and will be faced with red shale side-cut brick, made on a

Chambers machine. The Chambers family was much in evidence the morning of our visit, for, besides the manager, we found the venerable Cyrus Chambers, Jr., the veteran inventor of the various lines of Chambers machinery, deep in consultation with the head draftsman; in the office was Bernard Chambers, the treasurer of the company, while up in the machine shop, operating a lathe, was Theodore Chambers, the eldest son of Howard Chambers. The three generations of Chambers were working together in the true Quaker spirit of harmony.

While business has not quite met the expectations of early spring, Chambers Bros. Company feel pretty well satisfied with the season's trade, for in addition to the clayworking trade an immense order for paper feeding and folding machines for the Curtis Publishing Company helped keep things moving.

OBITUARY.

Death of Well-Known Fire Brick Manufacturer.

Word has been received of the death of W. S. Ravenscroft, which occurred at his home at Ridgway, Pa., July 25, from apoplexy, from which he had suffered acutely for about ten days, although he had been in ill health for some time. Mr. Ravenscroft was still in the prime of life, having been born

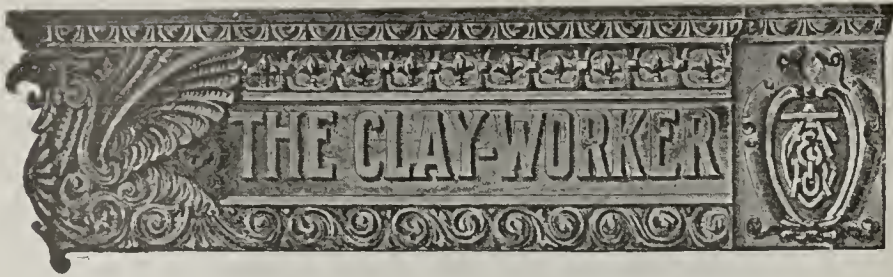


W. S. Ravenscroft.

in Virginia in 1858. He graduated from the University of West Virginia and practiced law for a number of years at Parkersburg, W. Va. Later on he became interested in the fire brick business, and in 1891 moved to Ridgway, Pa. He was one of the original promoters of the Shawmut Brick Company, Shawmut, and the Ridgway Brick Company, and a few years ago was instrumental in organizing the Elk Fire Brick Company at Ridgway. His opinion was highly valued as an expert on the quality of clay, and he was the chief factor in the development of the fire brick industry of Ridgway and vicinity. Mr. Ravenscroft was an old time member of the National Brick Manufacturers' Association and for many years a faithful attendant at the annual conventions, where he made friends by his genial personality and uniform courtesy. He leaves a wife and one daughter.

CONGRATULATIONS IN ORDER.

We have received cards announcing the marriage of Mrs. M. E. Lockington and Mr. Henry M. Thompson, which occurred Wednesday, October 12, at the home of the bride, in Philadelphia, Pa. Mr. and Mrs. Thompson will be at home in Baltimore after November 15. Mrs. Lockington has been THE CLAY-WORKER's scribe in the Quaker City for many years and enjoys a wide acquaintance among the clayworkers of Philadelphia and vicinity, each and all of whom will join with us in wishing her much happiness.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

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Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIV. OCTOBER, 1910. No. 4.

CURRENT COMMENT.

Louisville, Ky., "listens good" both from a business and a pleasure viewpoint.

Somehow some people would just rather argue politics than talk business, and to a certain extent these things clog the wheels of the business world.

The Kentucky metropolis is an ideal convention city. Its attractions are many and it is a safe prediction that a record-breaking N. B. M. A. crowd will assemble there.

Every time a brick is handled it costs money, consequently every practical facility for shortening the steps between the kiln and the wall in which the brick are used is worth while.

After an absence of seventeen years the N. B. M. A. is to return to Louisville in February and again enjoy Kentucky hospitality. A good time is in store for all who gather there convention week.

Those who attended the first Louisville convention and are still active, will need no urging to again sample Kentucky hospitality. It has a flavor all its own, and once tasted, is never afterward declined.

The N. B. M. A. Executive Committee is to be congratulated on the selection of Louisville as the next place of meeting. It is seventeen years since the first Kentucky meeting, but the good time enjoyed there is still a pleasant memory.

The good roads movement is getting pretty well advertised now and is said to include over four million people who are now identified with the movement. The two great needs of the movement are scientific system for road construction and the money to carry on the work. We have talked about

and all understand the great good that is to come from improved highways, and now let us get busy and improve them.

A consular report headline says, "East Africans Changing Their Apparel." It is a new one on us, because we had an idea that East Africa didn't wear enough apparel to call for a change.

It is worth keeping in mind that both the population and commerce of Canada are increasing quite rapidly and not only is there lots of trade in many of our staple lines, but there is lots of new building of a class that should make a good call for high-grade clay products.

The first Louisville convention was the most successful N. B. M. A. meeting held to that date—1893. During the intervening years the city and the association have each kept step with the march of progress. The city is much more attractive now than it was then, and the association has gained in membership and influence.

It is not only a splendid business rule to answer courteously all inquiries made, but some of the best business institutions make it a point to see that every letter or circular received is acknowledged and some answer made to every bit of mail coming in. It takes a little time and costs a little money and may at times look like a waste of energy, but just the same it is good business, and it pays.

ANOTHER SIDE TO CONSERVATION.

One might reasonably suppose that every phase in the matter of our natural resources has been touched upon and talked about, but here is something entirely new for the experts to cudgel their gray matter over. We are taught in school a lesson or two in indestructibility; taught that what is here always was here and always will be here, and that nothing is indestructible. It simply changes its form, but the elements remain. Now what goes with those elements, and where and how can we take them up and use them again, for according to this teaching, every bit of carbon in the coal, every bit of lumber that has been cut, all the clay that has been taken out and burnt, all the elements of these are still with us somewhere in some form or other and having an effect on other things. So, really, according to true science, we are not destroying or wasting our resources. We are simply changing their form, and the question is, Can we take up and make use of these elements in some other form again?

COLOR SCHEMES IN BRICK AND MORTAR.

The artistic side of brick architecture is coming to the front now in pretty good shape. It has been agitated and advocated for years, and has always had some attention, but not enough. Too many people in the old days considered a brick a brick, and saw enough good qualities about it as a structural material aside from all questions of architectural beauty and color effects. Now we are realizing more of the opportunities to get beauty and harmony of color along with all the other good qualities of brick and architecture. It was an idea worth trying and one not likely to be overdone, and should be encouraged on all sides.

The Hydraulic Press Brick Company, Chamber of Commerce, Chicago, have furnished some beautiful artistic designs in the furtherance of this idea, two of which are illustrated in this issue of THE CLAY-WORKER. Design B is of Hydraulic "Bokhara" in various shades of Indian reds, browns and green, this panel laid in half-inch joint, white mortar, represents service in red shades.

Design C shows a border red with a golden glaze and brick all in Flemish design. The nap of the brick gives a

soft, warm tone to the wall surface, resembling a rich Persian rug in variation of color.

Both are beautiful, soft, warm tones that are attractive and lasting and appeal to the high orders of the artistic sense. They are merely two examples of what might be done in the way of artistic combination, and should lend encouragement to the idea of developing more of the color schemes in brick architecture and getting in connection with claywork not only the best form of construction going, but the highest order of architectural beauty.

GLASS AND PORCELAIN BRICK.

Over in Germany, where they are prolific of new ideas and are great fellows to carry out research work of all kinds, there has been for some time a product known as glass brick. It is said, too, that the demand has increased somewhat in recent years, and a number of concerns are producing them. They seem to be produced as a side issue of other lines of glass goods, and it is difficult to get at any positive idea of the magnitude of the business.

Consul-General Robert P. Skinner in a recent report says there are three types of glass brick well known to the architects in that country. One, the Falconnier hollow brick, of a singular and irregular shape; another, a hollow rectangular brick, similar in shape to a common brick; and, finally, a pressed glass brick, molded into the form of a thick letter U.

This glass brick product can only be used for certain special purposes. It is not building brick in the true sense of the word nor is it intended or pretended to be. The idea is to have brick of this kind to use in walls instead of windows where both the wall and the light are essential. In other words, to build certain portions of walls of this glass or transparent brick to help light the interior. In this country we do it differently. We use prism glass and reflected and refracted light of one kind and another, and it is possible that some of this feature is embodied in some of the glass brick work of the Germans.

The consular report states that the chief objection to their more extensive use, that is, their use in general construction or in the larger portion of the wall is their inability to support more than their own weight, or even this, when the wall exceeds fifteen feet in height. As a consequence the glass brick itself must be guarded and the openings above and below supported with girders as if one were blocking out a window opening in a wall. The consul seems to think that there might be a chance to use them more extensively in America, where steel construction is all the rage, and no doubt there would be, too, but as stated above, we generally have a better means of obtaining light. We use special glass and Luxfer prisms. Continuing, the consular report says:

When these bricks are carefully handled they seldom crack or break, but as they are sensitive to changes in temperature, builders must use them with considerable discretion. They are delivered to contractors loosely packed in straw and are shipped in the same manner in carload lots from the factories. The mortar used in laying them should be composed of one part of fine sand to four parts of cement, the latter to include 50 to 75 per cent. Roman cement.

The rectangular, hollow, blown-glass bricks have become of late the most popular form among German builders. They are thicker than the Falconnier bricks and are therefore more valuable for fireproofing purposes, although a little more expensive than the Falconnier. These bricks cost an average of 13 cents each in dimensions of 125 by 250 millimeters (4.9212 by 9.8425 inches), or half that price for half-bricks, 125 by 120 millimeters (4.9212 by 4.7244 inches). Brickwork of this kind costs about \$4.20 per ten square feet.

The pressed glass bricks made in the form of a thick letter U are the cheapest, but are also the least popular, as changes in temperature facilitate the passage of moisture and dust

through the mortar, and as the latter lodges on the inner surface of the bricks, they eventually lose their transparency.

It is not understood that any of these forms are protected by patents. A large Hamburg building contractor estimates that to erect a first-class plant for making glass bricks as a specialty would cost \$178,500 to \$238,000. However, it appears that many German manufacturers of glass produce bricks as one of numerous lines whenever market conditions make it profitable.

Porcelain bricks are exceedingly uncommon, although there are a few houses in Hamburg, the exterior walls of which are faced with them. These bricks are made near Stettin, from clay found on the island of Bornhol, in the Baltic. It seems unlikely that they will ever become popular, as they are very heavy and expensive. A wall constructed of porcelain bricks costs over \$7.15 per ten square feet. Finally, they seem to attract dirt and soon present a bad appearance. Walls faced with glazed clay bricks cost about \$3.35 per ten square feet. In excess of the cost of unglazed bricks porcelain work costs 25 per cent. higher than glazed clay brickwork. It may be concluded, therefore, that porcelain bricks will never come into use except in a limited and special way in inside construction. These white glazed bricks at present are used chiefly in quadrangles and light shafts.

MATERIAL MEN AND LIEN LAWS.

With brick men as with others supplying materials for construction, one of the problems in the trade is that of collecting and preventing loss through bad accounts. To make trade safe and insure material men of their accounts different States have passed various kinds of lien laws. Some are good, some are indifferent and some are difficult.

For instance, down in Kentucky they had an excellent material men's lien law, by which the men supplying the material was on the same footing with labor and could in case of failure of the contractor to pay for his material any time within six months file a lien against the property. Then, even though the owner of the property had paid the contractor in full he was responsible for the material used and could be made to pay again.

The unfortunate thing about this law was that while it was good for the material man, sometimes it worked a hardship on innocent property owners, who were guileless and not informed on the law, and because every now and then some unscrupulous contractor would be the cause of some man having to pay twice for his material, the Kentucky law was recently amended, making it obligatory on the part of the material man to notify the owner immediately after delivery of material to the job that in case of failure on the part of the contractor to pay for it the owner would be held responsible.

Down in Georgia they have a different plan now. Henry A. Alexander, member of the Atlanta bar, and representative of Fulton county, and who is also author of the material man's lien laws of the Southeastern States, had enacted at the last Legislature a bill for the protection of the material man and laborer which necessitates contractors giving a bond when they undertake either public or other work as security for the material men and labor. It is a guarantee bond that they will promptly pay for all material and labor furnished on the work, and a provision of the law is that any firm or corporation supplying a contractor with labor or material or both, after the completion of their contract and within a year, shall, upon application, be furnished with a certified copy of the bond and authorized to sue for it in the name of the State, county or municipal corporation. Just how the contractors may take this we are not yet informed. It may seemingly work a little hardship by requiring them to give bond and add a little to the cost of construction, but it certainly ought to make safe the collecting of material bills and simplify and reduce the expense of collecting in case of trouble.

One great trouble under any legal process of collecting for

material is the delay and expense involved. And everything that makes to the reducing of this is better for the material man, because if a man figures closely on the price of material and he must then be delayed and pay attorney fees and spend time and money making collections it eats up the profit even though it may be secure. What we need is some simple method by which positive and prompt actions can be had on these things, and it looks like this is a step in the right direction.

TRADE LITERATURE.

VOLUME TWELVE OF THE TRANSACTIONS OF THE AMERICAN CERAMIC SOCIETY has but recently been mailed the members. It is as valuable and entertaining to the ceramists as any of the previous volumes have been. This 880-page report of their last proceedings at Pittsburg contains some of the most interesting papers and discussions the society owns. There is a wide variance in the subjects treated in the different papers and the report appeals to the practical as well as technical clay-workers. A number of the papers, with illustrations, will be reproduced later in THE CLAY-WORKER.

PAVING BRICKS FOR STREET RAILWAYS is the title of an attractive pamphlet recently published by Crossley & Sons, Ltd., of Middlesborough, England. The cover is in dark green, 7x9, printed in black, with an embossed terra cotta colored paving brick, bearing the Crossley stamp, in the center of the cover. On the inside title page appears the following definition of the ideal street (namely, brick paved): "Comfort in use, economy in first cost, no cost of maintenance for a great many years, highest degree of efficiency, originates no dust, smooth but not slippery, hence affords easy traction." The body proper of the booklet contains excellently written articles pertaining to the ideal roadway, giving the history of brick pavements in several countries, and showing the real causes for its being the best and cheapest pavement in the long run. Following this are given the advantages of Crossley's vitrified annealed bricks and notes of interest concerning paving bricks and street roadways. Numerous other articles appear in the booklet under the heads of Proper Construction, Specifications, Curbing, Foundation, Sand Cushion, Bricks, Paving, Rolling and Tamping, Expansive Cushion, and Fillers or Grouting. The name of Crossley alone should be sufficient to tell the readers of the value of this booklet as a trade getter. Mr. Crossley has been one of The Clay-Worker's ablest scribes.

ON VACATION.

It certainly surprises me to see the office get along;
I go away two weeks to stay, yet matters don't go very wrong.

It certainly surprises me to see the office lose a clerk
Of my estate and wondrous weight, and yet keep up the current work.

You'd think the boss to fill the gap would hire two husky workers, say,

At least employ a man and boy to do my work while I'm away.

He doesn't do a blooming thing—a foolish man, as you'll agree—

Yet things wag on when I am gone—it certainly surprises me.
—Philadelphia Public Ledger.

THE EASY WAY.

A little bit of kindness
To others now and then;
A little bit of blindness
To faults of other men;
The wish to be forgiving
When things somehow go wrong,
And life is worth the living,
And hope is in the song.

—S. E. R.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 447.]

FOR SALE, WANTED, ETC.

FOR SALE.

One No. 4½, 10x20-inch opening, mounted Champion crushing plant, with 24-foot elevator, 32-in. x 8 ft. revolving screen, with dust jacket; one Farquhar 10x12 balanced crank engine and boiler on wheels, used to crush less than 1,000 tons of stone, new condition; 1 No. 4 rebuilt stationary Champion crusher; 1 No. 3 mounted rebuilt Champion crusher; 2 No. 5 Champion crushers, good condition; 1 No. 3 Champion crusher, not rebuilt; 1 mounted 9x16 Climax, not rebuilt; 1 15 h. p. Cornish boiler and engine, on skids; 1 20 h. p. Style K traction engine (Farquhar); 1 10-ton Aveling & Porter steam road roller; several steam shovels, hoisting engines and concrete mixers; 3 rebuilt road machines, like new.

LAWRENCE MACHINERY & SUPPLY
COMPANY,
Arcade Bldg., Philadelphia, Pa.

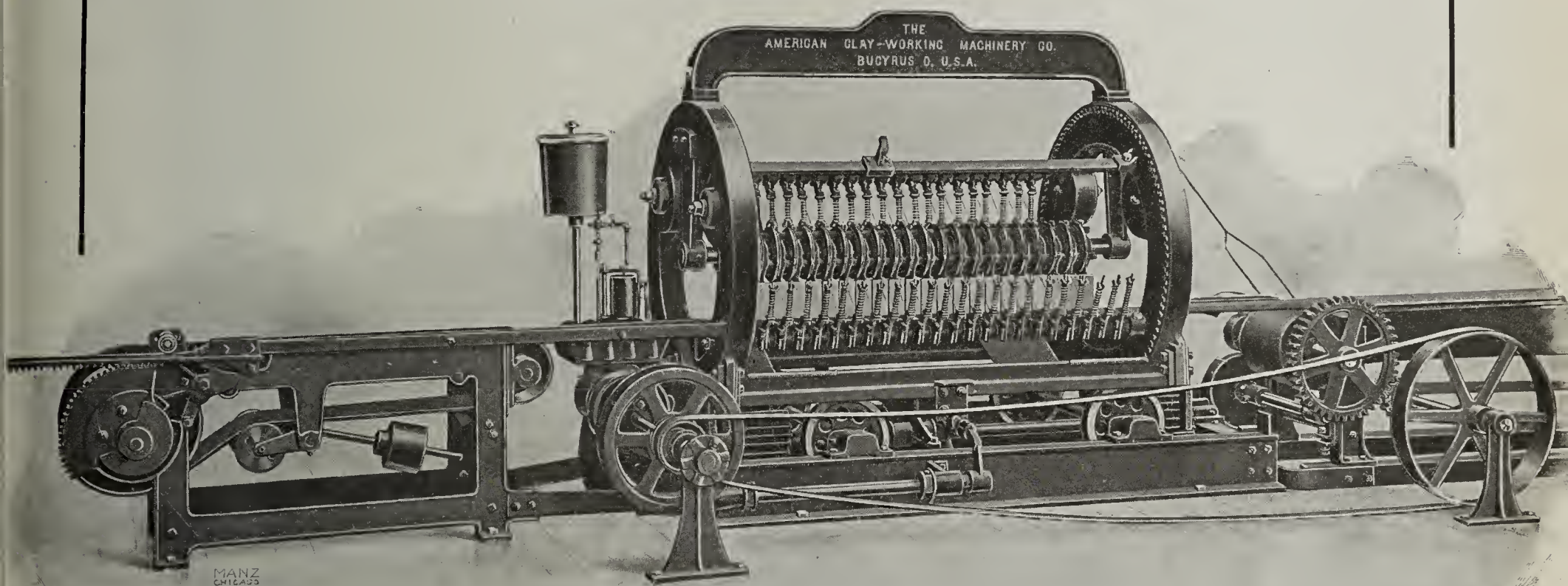
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pages 439-441.

"A Quality Above All Others" in Clayworking Machinery.

Automatic Cutter

The accompanying cut shows our No. 20 Automatic Cutter, which is one of half a dozen styles of automatic cutters we build. This cutter is simple, durable, accurate and rapid. It is compact, occupying the minimum of space, and overcomes the swelling and buckling of the bar of clay.

The rotary wire frame is driven by two large pinions in the center of the machine. These pinions are driven by a worm gear and worm, which gives a steady motion to the wire reel. The worm, or driving shaft, is set at right



angles with the cutter, and is driven with a friction clutch pulley. This friction clutch pulley is operated by the movement of the carriage, which starts the wire reel in motion, and it is thrown out of gear by the rotating wire reel.

The friction clutch pulley dispenses with the objectionable jaw clutch, and by its use it is possible to run the cutter at a greater capacity.

The cutting table is driven from a jack shaft. This arrangement dispenses with the dangerous tumbling shafts that are generally used. There are two sets of improved toggle wire fasteners, which permit more time for the wires to pass through the column of clay and leave them at rest in a horizontal position, which is the most advantageous position in replacing broken wires. This can be done without stopping the machine. The wires have a shearing action when passing through the bar of clay, making as perfect a cut as can be made with a wire-cut machine.

The wires are prevented from cutting the bar of clay before the proper time by means of a simple band brake and brake wheel. The carriage is kept in register with the moving bar of clay by a most simple register device. There is rotating motion to all its parts, so that any wearing of these parts does not affect the accuracy of their operation. The platens can be changed for cutting different thickness in a few minutes. The wire reel is carried on six track wheels, which are provided with eccentric pins to take up the wear. The cutter is built high-grade throughout.

The American Clay Machinery Company
BUCYRUS, OHIO, U. S. A.



"A Quality Above All Others" in Clayworking Machinery.

"A Quality Above All Others" in Clayworking Machinery.

American Steam Pipe Rack Dryer

(Patented)

We have just received letters patent on a number of new features in our improved Steam Pipe Rack Dryer which place it far in advance of all dryers of this class. With these additional improvements the problem of economical and thorough drying has been simplified. The American Steam Pipe Rack Dryer is making good wherever used and will be of interest to you. It costs you nothing to investigate this matter and it may be costing you a great deal not to investigate it. It is an economy in time, fuel, space and maintenance. The improved Cable conveying system which we install in connection with our Steam Pipe Rack Dryer is a feature which means much in cheaper handling of the brick from the brickmaking machine to the dryer and from the dryer to the kiln. The pallets when emptied are returned by the conveyor to the brick machine.

This system cuts out all trucking from the machine to the dry racks and all wheeling from the racks to the kilns. The brick being handled on pallets at all times, which insures a much better quality of brick, because handling each brick by hand necessarily caused more or less spoilage and marred brick. You are invited to investigate the American Steam Pipe Rack Dryer. It's worth your time.



Centrifugal Screen

We are going to tell you all about this screen in five words. It is

"BUILT RIGHT AND RUNS RIGHT"

If you are interested in screens and want a description of this Centrifugal Screen Success, we will mail you a circular about it which tells the whole story, but in this space we are going to allow the men who are using this screen to tell you how they looked for repair bills, how they searched for flaws, how they expected troubles.

They have been "through the mill." Just listen to them talk about it.

"Our Centrifugal Screen screens the clay very fast. The men who operate the Screen are pleased with results."—Columbus Plate Glass Co., Blairsville, Pa.

"The Centrifugal Screen has certainly surpassed our expectations. We have run the Screen 60 days without a cent's worth of repairs. We believe it will run indefinitely without repairs."—Michigan Vitri-fied Brick Co., Bay City, Mich.

"We have two of your Centrifugal Screens. One has more than paid for itself in labor saved. It is handling material for 100,000 brick per day. We shall use these Screens exclusively in all our plants in the future."—Coffeyville Vitri-fied Brick Co., Coffeyville, Kan.



The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

"A Quality Above All Others" in Clayworking Machinery.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



SINCE GETTING into the new quarters downtown N. Clark & Sons have leased a big yard, with splendid railway facilities, at Eleventh and Bryant streets, in this city. The yard is provided with spur tracks with a capacity of from twelve to fifteen cars at a time. The new yards have a storage capacity of 15,000 square feet and will enable the company to keep on hand in this city a large stock of all its manufactures. The company has recently closed some nice terra cotta and brick contracts and has between fifteen and twenty miles of sewer pipe to be supplied to new sanitary districts.

The Carnegie Brick and Pottery Company, of San Francisco, has moved its offices from the Clunie building, at the corner of California and Montgomery streets, to new quarters at 322 Montgomery street. The company reports that the works at Carnegie are keeping normally busy.

N. Clark & Sons, of this city, are now well settled in their new offices and sales rooms, which are generally admitted to be one of the finest buildings of the sort in the West. The new building is a three-story and basement structure at 112, 114 and 116 Natoma street, with a similar frontage on Minna street, and a depth between the two streets of 164 feet. Both fronts are artistically designed in matt glazed terra cotta, with polycrome work elaborations. The basement, ground floor and most of the upper floors are used for the storage of stock for immediate delivery. A large office is fitted up on the second floor, where also is a large and well-arranged sample room. The interior finish of the offices and sample room is in Mexican jenizero wood, with maple floor. The furniture is mahogany. The office is fitted with the latest devices, such as pneumatic tubes, carriers, etc. A special telephone service connects the various parts of the building. In the entry on the first floor is an artistic fireplace, which is to be fitted up with fancy tile, etc., of N. Clark & Sons' make.

The Steiger Terra Cotta and Pottery Works of this city are getting a good run of business on fire brick, the demand showing a steady increase. The company is shipping in fire brick clay from its beds at Ione, Cal. There is a steady call for the output to full capacity, the greater part going to the oil fields. A large part of the San Francisco foundry trade uses only English and Scotch fire brick, notwithstanding favorable tests for the local article.

The situation here continues rather favorable, though there is no great rush. The general run of building is rather quiet, though there is considerable activity in brick building. Common brick is, perhaps, a trifle more quiet than it was a month ago, but other lines show a little more life. Prices on all lines are unchanged. Brick men report a lot of figuring, mostly on smaller work. In this city there is a prospect for a steady call for common and pressed brick throughout the fall and winter, as a considerable amount of brick building is in contemplation. There is considerable shipping demand for pressed brick to points in the interior of California, as well as some call from points more remote. Last week a shipment of 170,300 bricks was sent from this city to Mexico.

Most of the brickmaking plants in the interior of the State report the summer season to have been one of the best in recent times. A number of the country brickmaking plants are now shutting down for the winter. For the first time in many years California was treated to a rain in the early part of September, and in some parts of the State the down-pour was sufficient to do considerable damage to the brick yards. Many of the plants are sun-drying plants, and in these many unburned brick were spoiled.

W. C. Little, secretary of the Houze Brick and Cement Company, with works at Vallejo, Cal., after a careful inspection of the company's brick plant, says that a number of improvements are to be made at the works during the winter. A wharf over 1,000 feet long will be built as an assistance to the shipping department.

The brick plant operated for the State of California at the Preston School of Industry, near Jackson, Cal., by the boys in

attendance, has produced this year 500,000 brick, which will be used in the construction of buildings on the grounds.

The East Shore & Suburban Railway Company, of Richmond, Cal., and the Oakland Traction Company, of Oakland, Cal., are using a large number of asphalt paving brick made of sand and asphalt as a by-product at the works of the Standard Oil Company at Richmond. The brick are used for paving along the electric railway tracks in Alameda and Contra Costa counties.

Sewer work is being rushed on a number of important sewers in San Francisco, and contractors are figuring on a lot of work of this sort for the coming year, as a number of bond issues have been voted and a large amount of new work is being planned.

The plant of the Monterey Brick Company at Monterey, Mex., is again in running order after the extensive damage by floods some weeks ago. The plant resumed operations late in September. The management reports contracts aggregating over a million and a half bricks.

The Western Pacific Railroad Company, which recently completed its line from Salt Lake to this city, has been getting figures on paving brick and will, it is understood, be in the market for about one million brick if satisfactory brick in sufficient quantity can be had at the right price.

Charles H. Frost, president of the Los Angeles Pressed Brick Company, operating a large plant at Richmond, Cal., and three plants in southern California, reports that his company has increased its output so far this fall 36 per cent. over that of the same period last year. Sales at the Richmond plant show an increase of 300 per cent. over last year.

Peter Tracey, a brick manufacturer of Arcata, Cal., is now installing a new sewer pipe machine.

The Pecos Valley Clay and Cement Company has been organized at Albuquerque, N. M., to engage in the manufacturing of sewer pipe, pressed brick, tile and terra cotta. The company owns 1,280 acres of clay land.

The Livermore Fire Brick Company, which recently completed a fire brick manufacturing plant at Livermore, Cal., turned out its first fire brick a few days ago. The clay used in making the brick was shipped in by rail from clay beds at Ione and Carbondale, Cal., but the company hopes to develop a good quality of clay in the immediate neighborhood within a short time.

The Simons Brick Company, of Los Angeles, Cal., one of the largest brickmaking concerns in the State, is preparing to establish an unloading station at Shorb, a suburb of Los Angeles, in southern California.

The Farmington Brick and Tile Company has been incorporated at Farmington, N. M., with a capital stock of \$25,000 by James T. Fay, R. T. Simpson, Seth Rye and W. H. Harrington.

The City Council of Stockton, Cal., is preparing to submit to the voters a proposition to issue bonds to the amount of \$77,000 for rain water sewers and \$40,000 for sanitary sewers.

William A. Weller, a pottery manufacturer of East Liverpool, Ohio, has been in northeastern Washington investigating clay beds with a view of establishing a pottery-making plant if a suitable location is found. He has been spending some time in the Big Bottom district, near Tacoma, Wash., where it is reported he has about decided to locate.

The Red Cliff Brick and Tile Company has been incorporated at Nanaimo, B. C., for the purpose of engaging in the manufacture and to exploit clay beds in the vicinity of East Wellington, near Nanaimo. The company controls 117 acres of clay land at that point, which it has proved to a depth of fifty feet. A plant will be established at once with a capacity of 40,000 bricks per day.

The brick plant and yard of Jensen & Sons, at East Forty-Third and Weidler streets, Portland, Ore., was burned a couple of weeks ago with a loss of approximately \$10,000. The fire is thought to have been incendiary, and one arrest has already been made as a result.

At a meeting of the stockholders of the Ione Fire Brick Company, held on September 12, in this city, an assessment of \$25 per share was levied on the capital stock of the company. The assessment will be delinquent on October 31.

The Anderson Brick Yard, at Anderson, Cal., has closed for the season after turning out a total of 3,000,000 brick.

SUNSET.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



CLEVELAND IS showing some class this fall in the volume and cost of its building operations. During the month of September it made a brand new record in this regard, excelling the same period for 1909 by 99 per cent. During the month 784 building permits were issued for structures valued at \$1,618,817, as compared with 592 permits for September of last year, which were valued at only \$814,405. Brick entered into many of these buildings on a large scale and perhaps explains why the dealers are so well satisfied with the business they are experiencing this fall.

All branches of the industry are extremely well pleased with the amount of business which is appearing as the fall season advances. There promises to be a big rush to get buildings finished before the cold weather sets in and prevents further structural operations. Large quantities of pressed brick are moving through the local retail offices, while the popularity which the white glazed terra cotta is attracting is responsible for many orders in that line. Paving brickmakers are shipping them out by the million in efforts to wind up paving operations before the roads become impassable. Many of the long rural stretches of brick pavement are rapidly nearing completion in the neighborhood of Cleveland and already plans are under way to tackle the remaining roads in this county and to finish them up next year and during 1912, when every road in Cuyahoga county will have been properly paved, mostly with brick.

During the past month a number of new building operations were launched. One of the most important of these is a new exposition and convention hall, which is to be built in Cleveland at a cost of about \$500,000. A permanent organization is being gotten under way by the Chamber of Commerce. Plans for the structure, which is calculated to seat 15,000 people, are to be made during the winter months and work is to begin early in the spring so it may be gotten ready for use next fall. It is proposed to have the exterior of some attractive shade of brick, with interior of steel and reinforced concrete. It will be larger than the Coliseum at Chicago and Madison Square Garden, New York.

Work on the new City Hall, costing \$2,500,000, is to begin at once. Although the superstructure is to be faced with granite to correspond with other group plan structures, millions of shale brick will enter into its composition. The foundations, which are to be put in this fall and next spring, are to be entirely of shale brick. The bids on the work have already been received, but no contracts awarded as yet. When completed the new building will have hundreds of thousands of dollars' worth of clay products incorporated into it.

A contract for \$75,000 was closed during the past week when the work of erecting the new building for the Tennis Euclid Company at Euclid avenue and East Fifty-seventh street was awarded. The building will be of brown shale brick and steel. Plans prepared by Architect George Griebel provide for a six-story structure of ornamental design.

A contract was awarded during the month for the erection of a new warehouse for the William Edwards Company, wholesale grocers, costing about \$500,000. The exterior walls and foundations are to be of brick, mill work being used elsewhere throughout the big building, which will cover a number of acres of floor space. The contract went to George B. McMillan. The structure is to contain 450,000 square feet and will be seven or eight stories in height. Shale brick of standard quality will be used, together with a shale face brick for the exterior walls.

Work has been started on the foundations for a new brick station for the Nickel Plate railway at the intersection of the

road and Euclid avenue. It will be of light-colored pressed brick, similar to that being employed in the Lake Shore's new station at East One-Hundred-and-Fifth street. The building has a frontage on Euclid avenue of 135 feet. Considerable ornamental terra cotta and stone work will be used on the structure.

A number of large new additions to factories in Cleveland have been announced during the past month. The Chandler & Price Company, largest makers of printing presses in the world, are building a \$60,000 addition, the work being in charge of the W. B. McAllister Company. The American Can Company is adding a four-story building 45 by 115 in size, the contract having been let to George B. McMillan. Masters & Mullen are building a large factory for the Ferro Machine and Foundry Company. It is a brick building 55 by 120 feet in size. A huge brick power house is being erected for the Cleveland Worsted Mills, a contract having been let to Andrew Dall & Son by George S. Rider & Co., engineers.

A permit was issued during the week for the general trades on the new Cleveland Athletic Clubhouse, which is to cost \$450,000 completed. It will consist of seven stories on top of a five-story building which is now about completed. The front will be of white glazed terra cotta, with walls of light gray brick. The interior of a large plunge will be of white enamel brick. The general contract is held by the W. B. McAllister Company.

Robert L. Queisser, of the Queisser-Bliss Company, one of the big builders' supply houses of Cleveland, is back in town again after a month's absence. He is a major in the Fifth Infantry, which was sent to Columbus to quell rioters. After being there about three weeks the regiment went to camp before returning. Mr. Queisser was glad enough when the bunch got back in town. He was one of the party of Chamber of Commerce members who went on a special train on October 8 to Buffalo to visit the exposition there.

During the week of October 10-15 Cleveland, the county-seat of Cuyahoga county, was the scene of one of its greatest celebrations when the county's hundredth birthday was honored. William H. Hunt, former president of the National Brick Manufacturers' Association, was chairman of the general committee and worked like a Trojan. To him much of the success of the affair was due. The celebration, which continued for five days without interruption, saw a number of daring aviation feats by Glen Curtis and other aviators and the dedication of the new court house and the Rocky River bridge. On Friday, October 14, Builders' Day was celebrated. Much of the work of arranging for the day was done by E. A. Roberts, secretary of the Builders' Exchange. At noon a luncheon was held under the joint auspices of the Builders' Exchange and the local branch of the Institute of Architects. W. H. Hunt presided and a number of addresses were given by prominent architects and others regarding the progress made in a century in the building industry made in Cleveland.

BUCKEYE.

BRICK STATISTICS OF NEW YORK STATE.

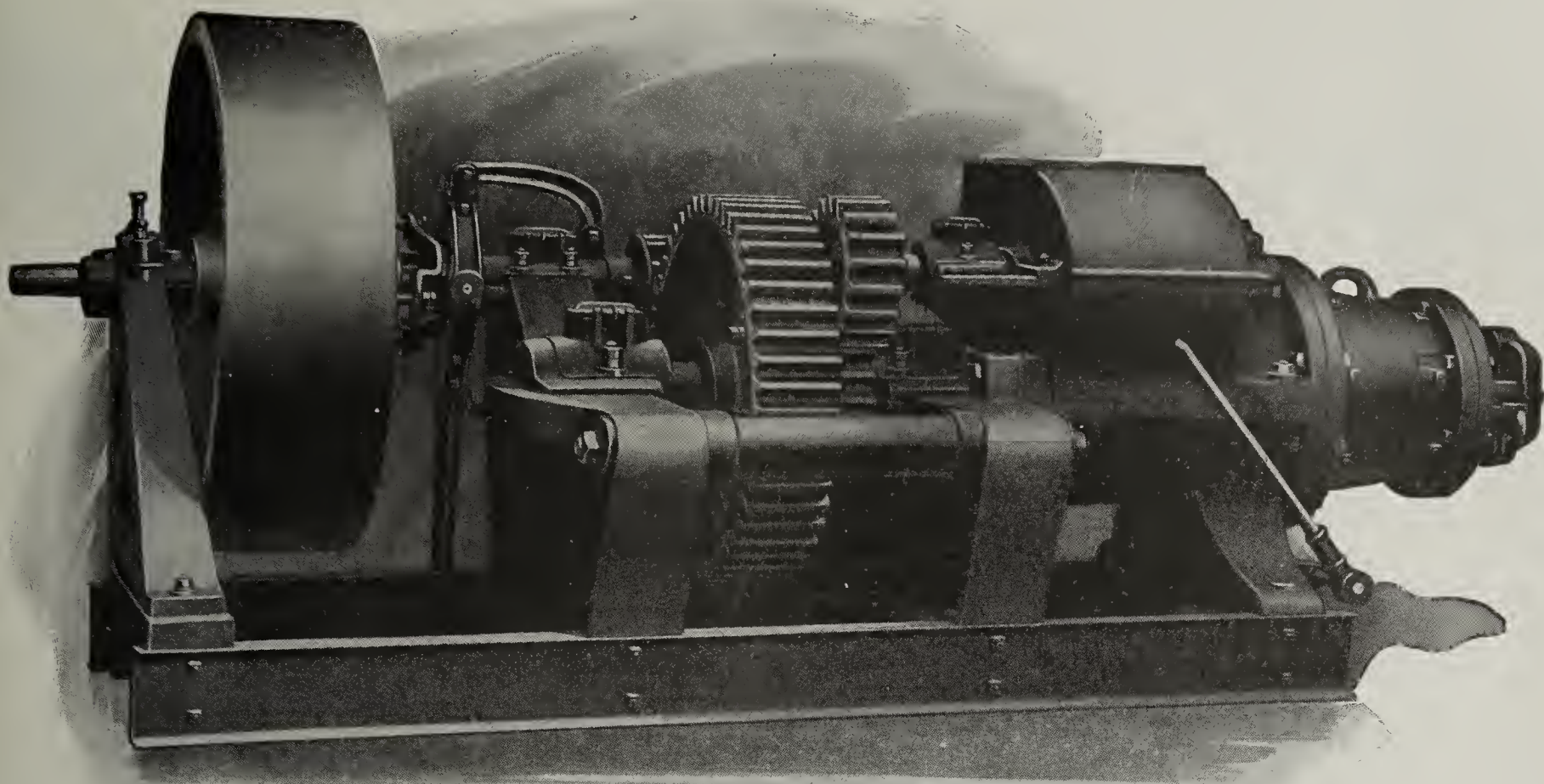
The New York State clay products report for 1910 has just been published. It states that the year 1909 showed a much larger output of brick was made in the Hudson river region. The total amount was 1,218,784,000 brick, valued at \$6,443,190, of which all but 210,000,000 were shipped, reliable estimates giving that amount as held over. This would give as the total sales 1,008,784,000, as against 817,459,000 sold in 1908.

The average price per thousand received for common brick in 1909, as based on sales at the yard, was \$5.31 for the whole State, and \$5.28 for the nine counties in the Hudson river region. The average price for the State in 1908 was \$4.79 and in 1907, \$5.33.

The output of common brick in New York State (exclusive of New Jersey) in 1909 amounted to 1,507,126,000, valued at \$8,009,766, a production exceeding that of any previous year with the exception of 1906.

The State output in 1908 was 1,351,591,000, valued at \$5,064,194, while that for 1907 was 1,351,591,000, with a value of \$7,201,525.

As in former years Ulster county led in production. Rockland held second place as usual. Dutchess county displaced Orange, which held third place in 1908.

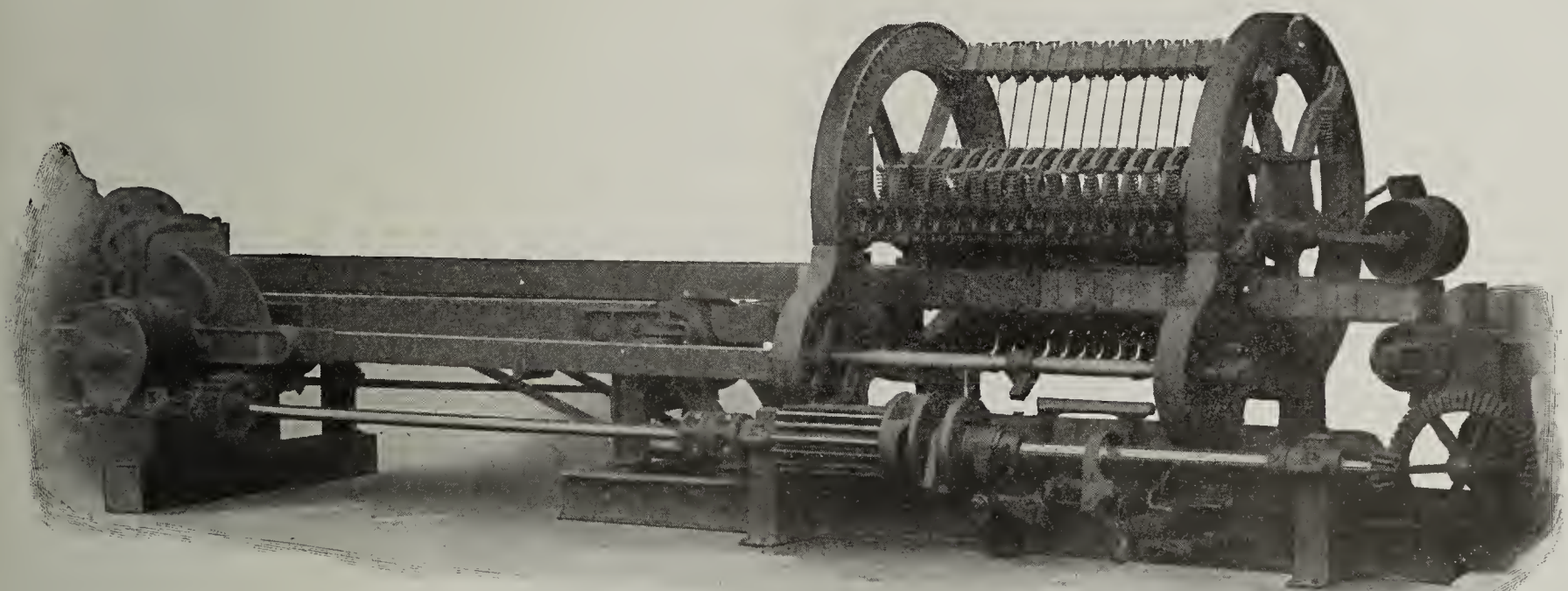


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 472-475.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



WITH THE EARLY arrival of autumn weather the brick manufacturers and jobbers of Wisconsin have been enjoying a brisk trade that gives evidence of continuing until winter arrives. A fresh impetus was given to business in general as a result of the early climatic change, and the Milwaukee dealers are optimists in their view of the situation.

The increasing use of brick in the construction of homes and small flat buildings is especially noticeable in Milwaukee this year, and similar conditions are said to be true throughout the state in general. This fact is perhaps due to a certain extent to the continued high price of lumber, but the educational campaign which is being carried on by the manufacturers and dealers of brick can undoubtedly be named as the most direct cause. The public is beginning to see some of the excellent points that can be brought out in buildings in which brick is used in place of lumber, especially in architectural designs.

Concrete as a building material for dwellings and homes will never become widely used in Wisconsin, according to the opinions of several leading architects. The Wisconsin climate, which is noted for its sudden changes, is said to have a deteriorating effect upon this material that is of no little consequence. The heavy frosts which occur during the night are often followed by days of very warm temperature, and whatever tendency for cracking that is contained in concrete is increased twofold by these sudden variations in temperature.

From the reports which are being received in the Wisconsin metropolis it would seem that the year of 1911 will be one of great activity for the manufacturers of paving brick. Preparations have already been commenced in several of the important cities of the state for paving their principal streets, and the consensus of opinion seems to favor brick as a material for this work in all cases. Several serious delays have been encountered in some of the city work this past summer owing to the failure of shipments to arrive on schedule time. It is undoubtedly on this account that the early plans are now being made, so that similar occurrences will not hinder the work of the next season.

At a recent meeting of the creditors of the defunct Northwestern Tile Company of Milwaukee, held before Referee E. Q. Nye, an order was filed declaring a dividend of 20 per cent. on all claims which have been filed and allowed since the last declaration. The dividend amounted to \$901.

Bids have been received by Commissioner of Public Works H. E. Briggs, of Milwaukee, for a brick pavement with a solid concrete base and for resetting the old stone curbing on the following streets: Poplar street, in the Second ward, from Third to Sixth street; Eighth street, in the Second ward, from Winnebago to Vliet street, and Walnut street, in the Ninth and Tenth wards, from Seventh to Thirteenth street.

Andrew Thompson, of Racine, has been awarded the contract for laying a total of 5,933.59 feet of sewers in Janesville. The work extends to different streets about the city and vitrified pipe will be used.

Brick paving operations at Janesville have been delayed to a considerable extent during the past summer owing to the late arrival of material in the city. In some cases contracts were cancelled and new ones awarded so that the work could be completed in advance of winter.

Suit has been commenced in circuit court by a number of residents of Fon du Lac living on Park avenue for the purpose of securing the cancellation of bonds held against their property by the Barber Asphalt Company. This street was recently improved with an asphalt pavement and the plaintiffs alleged that the Barber company secured the contract through fraud, and declare that the bonds are void on that account.

William Bauman, a former brick manufacturer, and a pioneer resident of Racine, died recently at his home in that

city, aged seventy-four years. He is survived by his wife and eight children.

Contracts have been awarded by the board of trustees of St. Mark's Lutheran church, of Sheboygan, for the erection of a new church building to cost \$22,000. The structure is to be constructed of pressed brick with cut stone trimmings. Chris. Ackerman & Sons have secured the masonry contract.

The Springfield Brick Company has secured the contract for the brick to be used between the car tracks at Janesville in the paving work to be done on West Milwaukee street. The order was received from the receivers of the Janesville Street Railway Company.

Plans have been completed by the Bertler Brick Company, of Manitowoc, for extensive improvements which will be made to its plant this fall. New equipment will be installed so that the capacity of the plant may be increased to 35,000 brick per day. The Bertler company is one of the oldest in the state, having been founded more than forty years ago by Steven Bertler. During the last few years it has been operated by three of his sons.

The city of Watertown is using a brick of special design along the street car tracks on the Fifth street pavement in that city. The brick will have one surface beveled so that all danger of a carriage wheel being caught between the rail and the brick is done away with.

A BADGER.

A REALLY POOR SHOWING.

COMPLETE reports of building operations in 1909 are only now available, and in building circles there is much gratification over the fact that of the total expended some \$930,000,000, of 73 per cent., was for "fire-resisting" building, an unusually high percentage.

Experts now explain, however, that that figure is misleading in that many take it to mean "fireproof" buildings. By "fire-resisting" it appears the authorities mean everything that is not wholly of wood, frame construction. Houses of brick walls and tin roofs, though all their floor and partition construction be of wood, are so called—buildings that could only "resist" fire a very little while. As a matter of fact the really "fireproof" construction, that is, buildings with walls of stone or brick and all the framing of steel, protected with hollow fireproofing tile or some substitute protection, only amounted to 14 per cent. of the whole. And in most of these the owners only aimed at protecting the structure; they did not enclose the stairs and elevators, protect the windows nor do half of the very necessary things to save the lives and contents in those buildings. The hollow tile will protect the steel and the external walls will not burn, nor the roof, but the tenants' furniture and papers and property can all be destroyed. These men have occupied those buildings under the impression that they are safe, and they are fairly so as far as the owners' interest is at stake, but not in so far as the tenants' are concerned. Of the really fireproof, absolutely fireproof construction, where fire can do but a very small percentum of damage to building or contents, only a handful were built in 1909, scarcely 2½ per cent. of the entire expenditure. And the disquieting feature about it all is that while our population has increased 74 per cent. in thirty years, our fire losses have increased 134 per cent. in the same period.

TRADE NOTES.

Fireproofing has been added to the list of clay products turned out by the T. B. Townsend Brick and Contracting Company at Zanesville, Ohio. Before the installation of the fireproofing plant R. C. Burton visited the principal points of manufacture and studied the methods of production. There are some excellent plants in Ohio and Mr. Burton investigated the good points of all so that the Townsend method embodies the most modern ideas.

New articles of incorporation have been filed whereby the Des Moines Clay Manufacturing Company, Des Moines, Iowa, increases its capital from \$35,000 to \$150,000. This company owns what is claimed to be one of the finest beds of clay in the United States and for a number of years have been developing a vitrified paving brick for facing purposes. As a result of their untiring efforts a facing brick which is called the terra cotta brick has been developed. It is made in every color and used for original foundation treatments, mantels and for general brick construction.

Fuel Oil Burners *for* Brick Kilns

Give more uniform heat.
Turn out a better brick.
Require less labor and attention.



Kirkwood Oil Burners in operation in a brick kiln.

Brick Plants situated where fuel oil may be obtained at a reasonable price (and the price of oil is very low now throughout the country) can make a great saving in the cost of fuel, turn out a better quality of brick and reduce the labor charges by installing the **KIRKWOOD NO. 6 FUEL OIL BURNER** in their kilns. Either compressed air or steam may be used for atomizing and the No. 6 special burner is designed so that it may be used for "water smoking" as satisfactorily and as efficiently as for burning the brick.

Give us data as to number, size and type of kilns, including the number of fire openings, and we will be glad to submit price on the equipment.

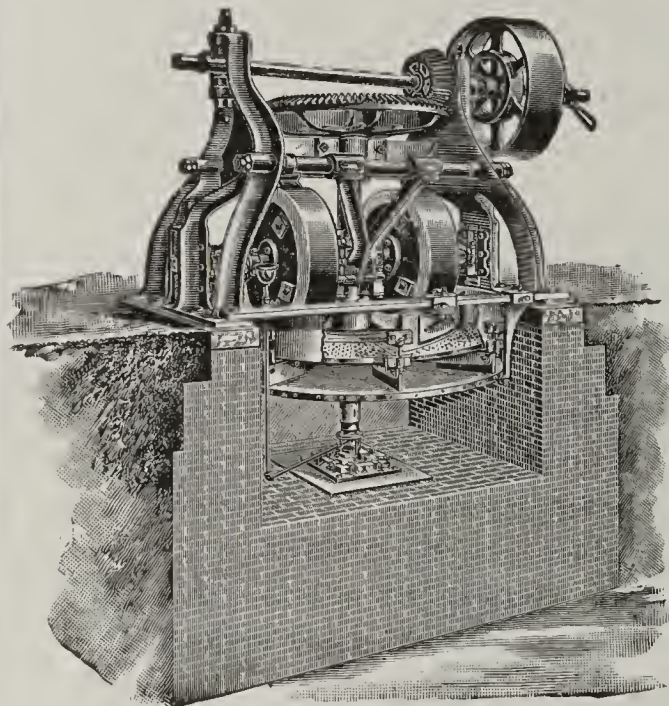
TATE, JONES & CO., INC.

ENGINEERS PITTSBURG, PA. MANUFACTURERS

STEVENSON'S WORLD BEATERS

WHAT EXPERTS THINK OF THEM.

UNSOLICITED TESTIMONIALS.



KITTANNING BRICK AND FIRE CLAY CO.

"We have been running this Pan for a good many years with little or no trouble.
S. C. MARTIN, Pres.

"Dec 23, 1903."

"We ground clay to make **108,000 brick** on our Pan **yesterday**. Would like to make at least 100,000 per day in September.

"Sept. 4, 1905."

E. B. LATSHAW, Supt.

SCIOTO FIRE BRICK CO.

"We purchased our Dry Pan from you 13 years ago. It has ground over 14,000 tons per year of hard shale, and is good for several years yet.

C. W. TURNER.

"March 19, 1908."

CANNELTON SEWER PIPE CO.

"The writer feels quite confident your C. G. Stevenson will be much benefited by coming and seeing **the finest Sewer Pipe Plant in the United States**.

H. M. CLEMENS, Sec'y.

"Sept 25, 1909."

"The Dies you recently shipped us are entirely satisfactory * * * I will not hesitate to say **as well as making the best Press, Pans and Clay Machinery on the market**, you also manufacture the best Dies.

J. J. ALLISON.

"Nov. 9, 1909."

SUBURBAN BRICK CO.

"While your price [on Screen Plates] is higher, we believe your plates are **worth the difference**.

"August 25, 1910."

A. A. WHEAT, Treas.

AMERICAN FIRE BRICK CO.

"Your Mr. Davis has finished setting the Press and **she is a dandy**.

C. P. OUDIN, Mgr.

"July 11, 1910."

"We are great believers in your Pans—we **think yours are the best in the market**, having two in use for the past five years without a single breakdown.

C. P. OUDIN, Mgr.

"May 17, 1909."

DOMINION SEWER PIPE CO.

"The new Press is working nicely. We are well pleased with it. Charley says '**It is the best Press in Canada.**'

"May 8, 1907."

THOMAS KENNEDY, Mgr.

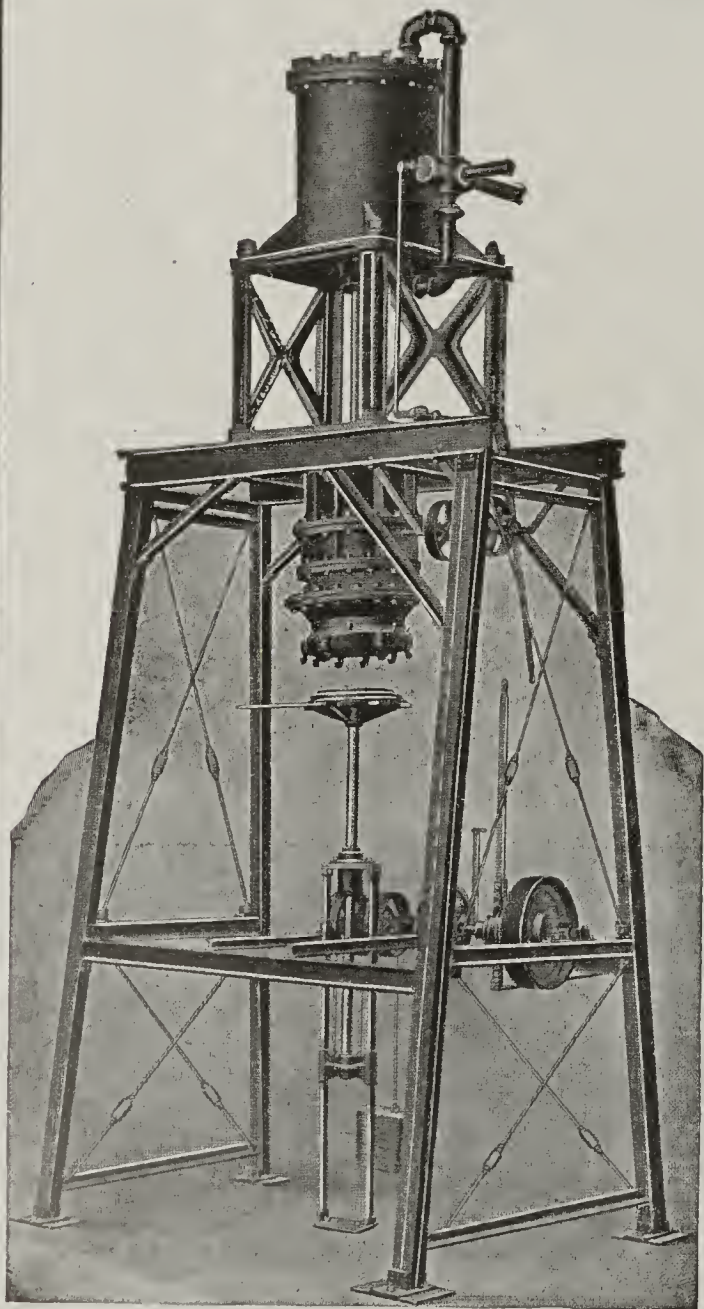
"Your Pans are **first-class**. We are making the nicest, smoothest Pipe you ever laid your eyes on.

"April 5, 1910."

THOMAS KENNEDY, Mgr.

For further information address

The Stevenson Co.
Wellsville, Ohio





NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

“Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed.”

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Barrett's PAVING PITCH



53d Street, Chicago. Brick pavement 15 years old, filled with Barrett's Paving Pitch.

Fifteen Years of Pitch Filler

Here is a brick pavement in Chicago, the joints of which are filled with Barrett's Paving Pitch. The pavement was laid in 1895 (15 years ago); it is still in good condition and will doubtless last for ten years more. Such durability would have been hardly possible except for the Pitch Filler. If sand filler had been used, the pavement would long since have been undermined, or the foundation would have been disrupted by frost.

If asphalt filler had been used, the same thing would have happened, because asphalt does not remain water-tight. It lacks adhesiveness and loosens from the bricks when they contract in cold weather, thus admitting water to the foundation.

If cement filler had been used, there would be big

cracks in the pavement caused by the breaking of the rigid monolith, on account of settling of the foundation or expansion and contraction.

Should the foundation settle under a pitch-filled pavement, the brick settles with it instead of bridging the gap and breaking under the weight of traffic.

As this pavement is filled with Barrett's Paving Pitch, there are no cracks and no undermining. The contour of the pavement remains excellent. "Every joint is an expansion joint," so that there has been no damage by expansion or contraction. Whenever there has been excavation it has been possible to use the same brick over again in relaying the pavement.

Despite its fifteen years of service, the pavement is still satisfactory. Such results can usually be obtained anywhere if Barrett's Paving Pitch is used.

Booklet giving further information on request.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

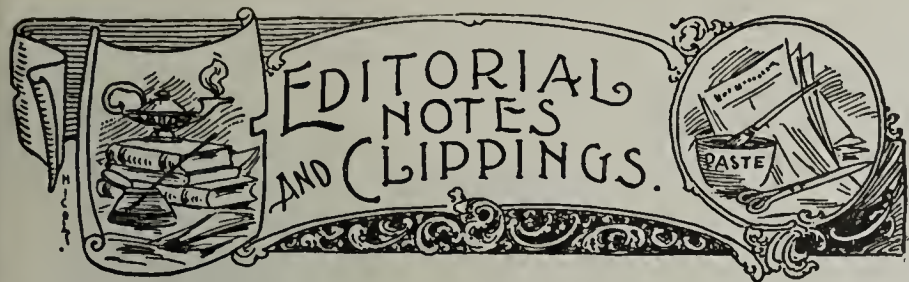
Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
London, Eng.



Burns & Hancock, Montezuma, Ind., write they are in the market for a second-hand repress.

The brickmaking plant of James A. Burd, near Portland, Ind., was badly damaged by fire recently. The loss is placed at \$5,000, on which there is no insurance.

The Carbon Coal and Clay Company is the name of a concern recently formed to mine clay and coal at Carbon, Ind. W. C. Shoemaker, of Indianapolis, is interested in the enterprise.

George L. Smith, the brick manufacturer of Keene, N. H., reports a very busy season and has his last kiln of 1,000,000 brick now ready to burn.

The Southern Indiana Brick Company, of Linton, Ind., has been incorporated, with \$80,000 capital stock. The directors are E. R. Cravens, L. W. Maddox, J. N. Thompson, W. C. McBride and others.

The Horace Purinton Brick Company, of Waterville, Me., has had a very prosperous season, and recently fired the last kiln of brick for the season. Not only is it the last kiln, but it is the largest kiln, containing 1,115,000 bricks.

The Yoke brick plant at Coffeyville, Kan., representing an investment of \$240,000, was sold recently by D. W. Knapp, trustee in bankruptcy, to F. B. Varren, of Michigan, representing a syndicate holding the bonds of the defunct concern. The price was \$36,000.

The Van Ormer Brick Company, of Pitcairn, Pa., has been indicted on a charge of misdemeanor in maintaining an alleged nuisance. It is claimed that the plant of the company gives forth great clouds of smoke and dust, to the great discomfort of the residents of Pitcairn.

With the best machinery on the market to-day for their purpose—that of E. M. Freese & Co., Galion, Ohio, and the Stevenson Company, of Wellsville, Ohio, the Allegheny Valley Brick Company is equipping a new plant at Olean, N. Y. The Stevenson Company will furnish two dry pans for the plant.

The Ashaway Clay Works Company, Ashaway, R. I., are filling the contract of a sale of 450,000 bricks for the buildings being erected for the Home for Feeble-Minded in the town of Exeter, N. H. The brick are being shipped by carload, and one and two carloads of 12,000 brick in a car are being sent daily. Other large contracts are under way by the company.

The plant of the American Drain Tile Company at Terre Haute, Ind., was damaged to the extent of \$100,000 when Sugar creek, a small creek close to the plant, overflowed its banks and water poured into the factory. The product of twenty-five kilns was ruined and the machinery so badly damaged that it was necessary to shut down the plant.

A journal entry, approved by Judge Harter, has ended the litigation which involved the affairs of the Standard Clay Products Company, of North Industry, Ohio. The entry gives the plant absolutely to John Starkey for \$15,000. It states that the receiver found everything in proper shape and that charges of mismanagement are untrue. Three suits are cleaned off the docket by the entry.

The Decatur (Iowa) Brick Company has voluntarily raised the wages of its seventy men some 6 per cent. With winter coming on, the raise will be appreciated by the men. The company stated that the action was taken in keeping with the times. That is, the company is convinced that business is good and that the country is prosperous and that there has been a material advance in the price of the necessities of life.

Stevenson Company, Wellsville, Ohio, has finally completed shipments on the big order placed last spring by Robinson Clay Product Company of Akron, Ohio, for the rehabilitation of their big plant at Midvale, Ohio, which had been wrecked by a boiler explosion. This required two nine-foot dry pans, two eight-foot wet pans, twelve frames for as many other wet and dry pans which they wanted "Stevensonized" and made practically a Stevenson outfit, four clay conveyors, twelve four-inch drive shafts, 160 feet of seven-inch shafting, twelve forty-eight-inch friction pulleys, fourteen crown wheels, sixteen steel

pinions, twelve elevator boots, two 600 horsepower heaters and two big rock breakers.

A charter has been granted the Afton Brick and Tile Company, of Afton, Okla. W. J. Vane, of Arcadia, Kan., and Charles Fowler and F. S. Brooks, of Afton, are interested.

The large new plant of the Hinde Brick and Tile Works, at Sandusky, Ohio, formerly known as the Smith Brick Company, has been completed, and will soon be turning out brick regularly.

C. F. Luckenbach, Peter Koch and Gus Birkner, of D'Hanis, Texas, are interested in a project to erect a brick plant at D'Hanis. A good deposit of clay has been located and a company is being organized to work it.

If the gentleman who wrote to S. Hicks, of Providence, Ky., some two years ago, regarding red sand will write to Mr. Hicks again, he can learn something to his advantage as to the location of bright red sand in unlimited quantities.

The Savannah Brick and Fuel Company, of Savannah, Ga., has been chartered to manufacture brick. Those interested are B. Rothwell, G. W. Milliken, C. H. Findley, U. H. McLaws and D. W. Wimbish, all of Savannah. The company is capitalized at \$25,000.

F. Boyle has leased an immense tract of land at Grand Ledge, Mich., containing large deposits of shale, and a company will at once be organized for the purpose of erecting a large plant for the manufacture of paving brick. The shale deposit covers an area of 100 acres.

H. Stevens, of Portage La Prairie, Manitoba, contemplates the establishment of a brickmaking plant at Medicine Hat, Manitoba. He expects to spend about \$75,000 on the same, and has leased a tract adjoining the plant of the Alberta Clay Products Company, and has had tests made of the clay which have proven satisfactory.

The brick plant at Grafton, W. Va., formerly owned by the Grafton Brick Company has been purchased by a company composed of James Irving, John T. McGraw and T. E. Joyce. Mr. Irving will have the management of the plant, and expects to have the plant running full force in a short time, turning out building, paving and fire brick.

V. L. Garber writes that the company with which he is connected at Kentwood, La., expects to put in machinery to increase the capacity of the plant to 50,000 brick per day. They had a splendid trade this season, but the price has not been as good as usual. They will be glad to receive catalogues and prices of stiff mud brick machinery.

John S. Huyler, the millionaire candy manufacturer, died at his home at Rye, N. Y., October 1, after an illness of several weeks. Besides his immense candy business Mr. Huyler was also interested in a number of other enterprises, chief among which was the Chestnut Ridge White Brick Company and the Menemsha Clay Company, being a director in both concerns.

The Salineville brick plant, at one time operated by Banker Thompson, and at another by the defunct U. S. Fireproofing Company, has taken on a new lease of life in the hands of Miller & Coulson, of Pittsburg, Pa. The Stevenson Company, Wellsville, Ohio, has supplied considerable new parts for their machinery recently, and under the new name of the Ohio Clay Product Company they are going after business with vigor.

The Blair Silica Brick Company is the name of a corporation chartered at Harrisburg, Pa., for the purpose of engaging in the manufacture of silica fire brick at Claysburg, Blair county, Pennsylvania. The incorporators are Messrs. J. H. France and D. Ross Wynn, the well-known fire brick men, of Philipsburg; William I. Schaffer and John Hannon, Jr., of Chester, who are associated with them in their Sandy Ridge fire brick plant, and David P. Reighard, of Pittsburg. The company controls seven miles of virgin ganister rock adjoining their proposed plant, said to be unsurpassed in quality,

(Continued on page 438.)



All persons are warned against INFRINGEMENT.
FISKE & COMPANY, Inc.
BOSTON. NEW YORK.

EDITORIAL NOTES AND CLIPPINGS—Continued.

and will proceed at once to erect mammoth works of the most modern character, with a capacity ultimately of 100,000 brick per day.

A large acreage of brick clay land adjoining the town of Mica, Wash., has been purchased from D. W. Hurn by the Washington Brick, Lime and Sewer Pipe Company, of Seattle, Wash.

The Gulf Coast Brick and Tile Company is a new firm recently incorporated at Brownsville, Texas, by C. W. Winsted, E. F. Johnson and A. A. Browne. The company has \$25,000 capital stock.

M. Reardon is at the head of a company being organized to manufacture brick and tile at Normangee, Leon county, Texas, and will be glad to receive catalogues and prices of machinery, etc.

William Drayden has purchased the plant of the Roseville Brick and Terra Cotta Company, at Roseville, Ohio. The new owner will remodel the plant and increase the capacity of the kilns. The plant now turns out about 30,000 per day.

Articles of incorporation have been filed by the N. E. Palmer Company, of Tennyson, Ind., by the directors, N. E. Palmer, L. Hobbs, George W. Dyer, John T. Powers and Aram J. Knapp. The company is capitalized at \$10,000, and will at once erect a plant for the manufacture of brick and tile.

A fire which started in the boiler room of Thompson & Wills' brick plant at Royersford, Pa., shortly before midnight, October 6, resulted in the total destruction of the entire plant. The loss amounts to \$15,000, covered by insurance. The flames had gained such headway before the fire department arrived that nothing could be done to save the plant.

One of the large brick kilns at the Glen Gery Brick Works at Shoemakersville, Pa., collapsed while workmen were repairing it, and four men were buried in the ruins. It is estimated that 22,000 bricks were contained in the arched kiln, the sides of which bulged out and weakened the center sufficiently to permit of its utter collapse when the men were inside repairing.

A committee of citizens has protested against the John A. Keif brickyard, at Denver, Colo. The yard is in the heart of the improvement district. Mr. Keif refuses to vacate until he has removed all of the clay on his property. The citizens object to having the brickyard near their homes. The members of the Board of Works, to whom the matter was referred, told them they had no recourse and that Mr. Keif could not be removed.

Mr. Charles Pratt, Sr., proprietor of the Plattsville Brick and Tile Works, Toronto, Ont., Can., was killed a short distance west of Plattsville recently. He was returning from Bright with a load of coal and while descending a steep grade he fell from the load to the ground, the hind wheel of the wagon passing over his body. Death was almost instantaneous. Mr. Pratt conducted a successful business in Plattsville for many years and was well known and highly respected.

Andrew Fraser, engineer of the Brick and Tile Company's plant at Russell, Ont., Can., had a narrow escape from being burned to death. He had put on a coal fire under the boiler, and went around behind the boiler to open the vent. The coal had just burned enough to develop the gas, and when the vent was opened the gas exploded, blowing the fire into his face and setting his clothes ablaze. If help had not been at hand he would probably have been burned to death. He will recover.

In conjunction with Canadian interests which have a one-half share in the undertaking, the National Fireproofing Company has started work on a new million-dollar plant at Hamilton, Ont. A Canadian corporation, the National Fireproofing Company, Ltd., of Canada, has been formed to construct and carry on the business of the plant. The output will be hollow tile fireproofing. The National Fireproofing Company has also bought 350 acres of clay lands at Elkton, Md., and will erect a factory there.

The Thurber Brick Company, Thurber, Texas, recently closed a contract to furnish the brick which goes into the building of a monster packing plant at Sweetwater, Texas. The first order amounts to half a million building brick, and already shipments are being made, and will continue from time to time as the work progresses on the buildings, which has already commenced. This first order does not comprise even the full quota of building brick that will be required, and in addition to the building brick future orders will call for

pavers for stock yards and pens, and floor blocks for the ground floor of the entire plant.

The Texarkana Clay Products Company has been organized at Texarkana, Ark., with \$100,000 capital stock. A plant will at once be erected for the manufacture of brick and pottery.

The Zeigler & Collins Brick Company has been incorporated to manufacture brick and tile at Savannah, Ga. The company is capitalized at \$12,000, with rights reserved to increase same to \$100,000.

Granville R. Swift is president, B. C. Dickinson vice-president and E. L. Jones secretary and treasurer of the Southern Brick Company, which has recently been chartered to manufacture brick at Fredericksburg, Va.

The Red Cliff Brick and Tile Company has been incorporated at East Wellington, near Nanaimo, Vancouver, British Columbia, and will erect a brick plant at the place of 40,000 capacity. They expect to manufacture brick and roofing tile.

The Southwest Terra Cotta Company has been organized at Kansas City, Mo., with \$150,000 capital stock, and has bought three and one-half acres of ground, on which a large factory will be erected. A. F. Brooker is the president of the company.

The brickmaking plant at Cedar Rapids, Iowa, owned by W. Fox and M. J. Miles, was partly destroyed by fire October 8. The plant is located so far from the fire district that it was difficult to get a good fire pressure until the main building had been burned.

William O. Tegtmeyer, secretary of the Chicago Terra Cotta Company, died recently at his residence in Highland Park. He had been ill for about three months. Mr. Tegtmeyer was born in Chicago forty-eight years ago, and resided there until about a year ago, when he removed to Highland Park because of his business connections.

The inventory of the estate of the late Richard Murray, the brick manufacturer of New Britain, Conn., has been filed in the probate court. It is one of the largest estates filed there for some time, amounting to \$112,157.14. The appraisers were Virgil M. Palmer, brick manufacturer, of this city, and Franklin C. Whitney, of Hartford.

Samuel Dibble will erect a drain tile plant at Bowman, Orangeburg county, South Carolina. There are nearly 2,000,000 acres of the coast counties of the State that need tile drainage. In the past the cost of the tiles has been too great to permit a general reclamation scheme. It has been agreed that the best scheme to secure tile drainage is to manufacture the tiles in the counties where the product is to be used.

The fire that destroyed the \$85,000 plant of the Granite Brick Company at Fremont, Mich., will be the subject of a fight in the courts. The insurance companies that paid the losses have filed an action against the Union Pacific Railroad Company, charging that sparks from a Union Pacific engine started the blaze. The insurance amounted to \$5,000 and the fire loss was appraised at \$15,000. However, the officers of the brick company, whose plant is located on the Union Pacific right of way, refused to join in the action. In order to get them into court the insurance companies have made them co-defendants.

The brickmaking season at Dover Point, N. H., is rapidly approaching the end, and according to report the season has been one of the most prosperous in recent years. Elbridge G. Gage, who is easily the largest manufacturer this season, has just started burning his fifth kiln, and his output, it is expected, will reach about 2,000,000. Another busy brickmaker at the Point is James Parle, who has had a very successful season. Mr. Parle is at present burning a kiln, and will have another before the season is ended. Ex-Representative Charles H. Morang has finished burning his last kiln, and, like most of the brick manufacturers along the river, he has had a good season.

PROMENADE TILE

Chocolate Red

Highest Vitrification—Lowest Absorption.

BEST BY TEST.

KUSHEQUA KERAMIC COMPANY,

Kushequa, Pa.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LIV.

INDIANAPOLIS, IND., NOVEMBER, 1910.

No. 5.

Written for THE CLAY-WORKER.

INCREASED USE OF BRICK IN OMAHA.

AN ALL BRICK TYPE OF RESIDENCE—FIRE PROOF,
EXPENSE PROOF, TIME PROOF.

THAT THERE has been of late in the West a marked increase in the use of brick for building purposes is apparent to the most casual observer. Brick is the oldest known building material. Its worth has never been subject to serious doubt or debate. No other manufactured product suitable for structural purposes presents to the artisan the same complete, integral, ready-to-use unit.

A brick comes from the kiln a finished article. It is loaded into the car and transported to customer. When unloaded at the building site it is precisely the same as when the burner pronounced it "done."

Now alone is required the skillful hand of the mason to give it a place in the wall, held only by a bond of mortar, to bear its heavy load and perform its function, having been woven into that fabric called masonry, the most dependable, most pliable, most durable and therefore the most desirable construction known to modern building science.

Other materials have come and gone, but brick lives on forever, free from uncertainties, independent of that element known as "human fallibility," impossible of cheating or being cheated, the perpetual building material. And it is this reliability that in greatest measure accounts for the impregnable position held by brick as a building material.

Omaha is reputed as being conservative, safe and sane in its preference as to types of construction.

Omaha architects are distinctly progressive and well informed, and yet they have not "fallen" for the lure of quick, flimsy, uncertain and so-called cheap modern methods which have prevailed in many cities. Massive piers and foundations of masonry support our best buildings; foundations, whose broad footings rest securely upon the solid earth, never to yield a hair's breadth, no matter what winds or waters or conflagrations may rage.

But Omaha is not typically a city of brick, as is Denver, whose ordinances prohibit frame construction within its limits. The builder in Omaha can build most flimsily if he so

wishes. For this very reason it is a credit to the class of investors responsible for our business and other important buildings — not overlooking residences—that masonry is common rather than uncommon.

Figures are not available with which to present in dollars the value of the brick work in buildings erected in Omaha within a period of ten years, but to any one who has kept open an observing eye it is easily apparent that the increase in the use of brick has been marvelous.



Main Entrance of R. E. Sutherland's Residence.

In no department of masonry is this fact so noticeable as in the use of face brick for residences. Here as in no other sort of construction is the tendency toward the use of brick so well emphasized, because we have been accustomed to see frame dwellings erected by the hundreds with hardly a single brick house to break the monotony.

A drive through the streets of the residence sections of Omaha will open the eyes of any doubter. "Fairacres," for example, is a brick settlement. Not one of the many beautiful homes erected in this most charming suburb is of frame. Masonry has a complete monopoly in Fairacres.

The Field Club District, which started out to be a frame community, has undergone a striking change of heart and in addition to the numerous handsome all-brick residences are a dozen or more half-brick ("shirt-waist") houses, or stucco exteriors in which fine face brick have been used in a conspicuous and generous manner.

Perhaps the most striking example of artistic all-brick work in the Field Club District, if not in the whole city, is the now almost completed English style brick residence of R. E. Sunderland at 37th and Pacific. This house has attracted much favorable comment largely because of the tapestry effect worked into the exterior walls of fine masonry.

And what is true of these sections applies to every important residence part of Omaha.

The use of brick is increasing because brick has merit superior to other building materials.

The cost of building of brick is commonly thought to be very high. This is a mistake.

To build of brick veneer does not cost to exceed 20 per cent. more than frame. Suppose, therefore, the contemplated investment in a frame house is \$5,000.00. If the builder adopts the brick type of house the cost may run up to \$6,000.00. Where will the extra \$1,000.00 come from? It is undeniable that building and loan associations would prefer to increase the loan sufficiently to change from frame to brick rather than carry the lower risk on the cheaper construction. Insurance is less on the brick structure. The comparative cost of repairs and up-keep discounts the frame investment at the start. Occupants of the brick house enjoy comforts quite unknown to those who inhabit the frame building. Passers-by praise the looks of the most modest brick house.

Building lots usually increase in value quite perceptibly in ten years' time. If the building is frame the depreciation is not less than the increase in land value—a flat loss of such increase to the owner. If the building is of brick the idea of depreciation is hardly suggested to the buyer. The owner, therefore, saves in cost of up-keep, repairs and worry and also saves and realizes the natural increase in the value of the realty.

A brick property is always salable, while a frame property fails to attract a buyer except at heavy loss.

It is these facts which are turning the minds of Omaha home builders to the use of brick, and Omaha is destined to be a city of beautiful brick buildings.

Another factor in this change of ideas on the part of builders is the recent development in the art of making fine brick. Today a hundred colors, kinds, styles and shapes of face brick are available, where none but smooth dry-press red, buff and grey were formerly offered. Progressive brick manufac-



An Artistic Brick House Safe from Ravages of Fire and Time.



East Front of Sunderland's Beautiful Brick Home.

turers and dealers are in a large measure responsible for the present general interest in brick as a building material.

There has been of late a decided increase in the use of brick throughout the entire West, but it is only the beginning of an age in which brick will be the generally approved and accepted construction material.

There is some consolation about a severe winter—it will destroy some of the disease germs and other pests that worry us during the summer.

UNWELCOME ARGUMENT.

"THE MODERN idea," insisted the Ultra-Progressive Man, as he pinned Old Ironsides in a corner and began to unload argument on him, "is profit-sharing."

Old Ironsides shrugged his shoulders and tried to escape and seeing that he couldn't without taking on and answering a little of it, said: "That may be your idea, and you may have some argument to back it up, but I want to tell you before you start in that it is unwelcome argument to me.

That has been my trouble too much now. Profit-sharing, that is, a share of my profit has gone to grafting foremen and to others who have either sought to get me into trouble through following out some scheme of theirs, or some way or other I have shared too many of my profits to please me."

"Well," put in the U.-P. M., "it's the modern idea and the only plan to follow. It is a sure cure and the one specific for this cry that I hear going up at times about incompetent foremen and foremen who don't seem to have the institution's interest at heart like they should. The idea I have got in mind is that you should make up a profit-sharing scheme for the foremen of the different departments of the institution and for the active lieutenants in charge of the office so as to give them a live and wide-awake interest in the business. Put it on a different footing."

"The trouble with profit-sharing in the past has been that it is something like the trouble with the concrete boys. The people who have applied it sought to cover too much territory. To follow out the piece-work idea and divide with all the employes on the place, or take in some sweeping plan that involved everybody and everything. That is covering too much territory at first anyway, and what we need to do is to take less ground at a time and work it thoroughly, and let the idea spread as we become accustomed to it."

"Well," Old Ironsides grunted, "I am not going to spread it around my place if I can help it."

"Well, but hold on," said the U.-P. M.; "I have some more good argument here. It is the argument about keeping with us the best class of employes. If you or I have a good man working for us as foreman or superintendent, when he gets to know the



Sunderland's Residence, View from Southeast.



View of Sunderland's Residence from Southwest.

business pretty well and he gets his ambitions worked up, he wants to spread out and grow bigger. He longs for a share in the business. Then if we don't take him in and let him share profits and let him see other things besides a good salary some day he will either go elsewhere or he will go out and start a new business in competition with us, and often we not only lose him, but we gain in his place some competition.

"What we ought to do is keep these good men. Make it worth their while, and make them earn us more money while building up into the business themselves.

"There are two general plans for carrying out this idea in the modern spirit. One is to set aside a certain per cent. of the net profits of the institution each year and divide it with certain men. Say the managers and the office and the superintendents and the foremen. Make the ratio of division somewhat in proportion to their relative value as represented by the pay-roll. Pay them a reasonable salary all the time and then have dangling before them this watermelon to be cut at the end of the year, say 25 per cent. of the new profits of the business, to be divided between the executive heads. I tell you it is a great stunt, and it is a thing that stimulates action and clinches loyalty.

"The other general plan is to take them into the firm. Sell them a certain amount of stock or donate it at the end of the year as a premium for extra work. and make them

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF CLEVELAND.

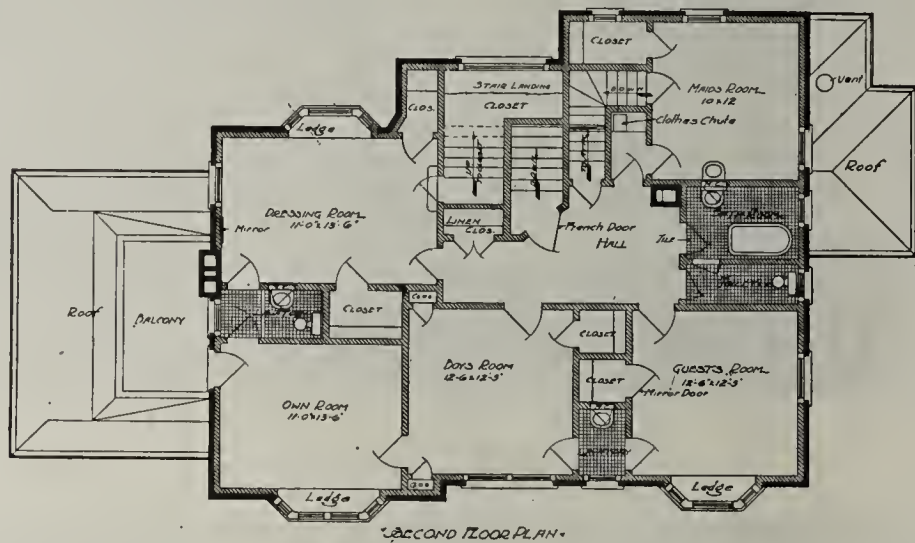
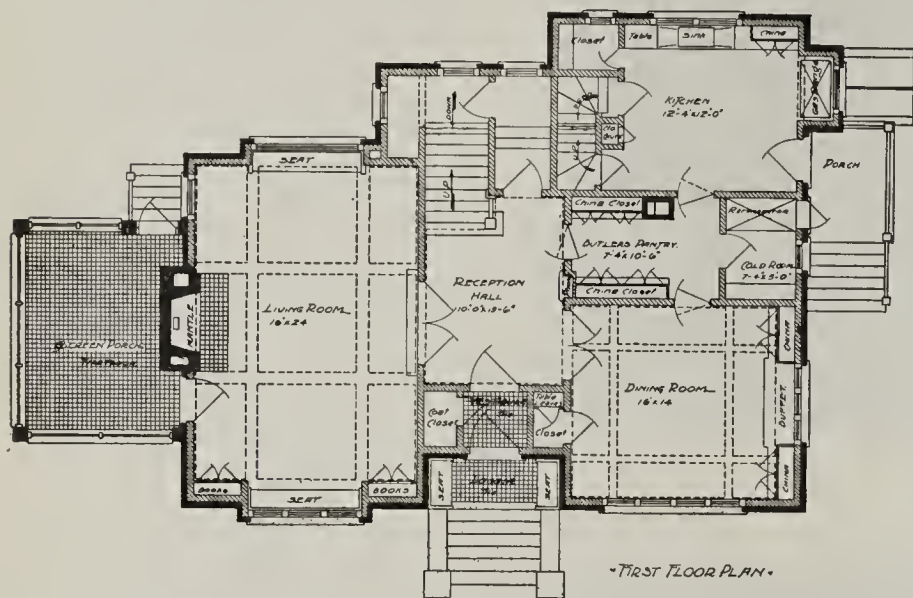


USINESS WITH THE brickmakers and dealers in this territory continues on a very satisfactory basis. Large volumes of both building and paving brick have been turned out and used during the past month, the fall rush having been in full evidence in every branch of the industry. Indications are that consid-

erable building will be proceeded with this month if weather conditions will permit, for the volume of building permits which are being taken out is surprisingly large for this time of the year.

October was another record-breaking month in the matter of permits. During the month 814 permits for buildings were taken out at the City Hall. with an estimated value of \$1,439,462. It seems entirely probable at this time that all former building records for Cleveland will have been smashed when the total for the year is compiled.

Definite arrangements for the financing of a splendid new hotel on Euclid avenue, costing \$2,500,000, were completed during the past month, when E. M. Statler, who built the Statler Hotel at Buffalo, took a lease on a tract of land at



First and Second Floor Plans of the R. E. Sutherland Residence, Omaha, Neb.

active members of the firm. Shoulder them with responsibility and as they grow into the work unload onto them a lot of the details. They will appreciate it and will relieve the burden of the manager, will stick to it, and in the end there should be more profit both for the institution and for the men."

"I admit," said Old Ironsides, as he shook himself free and started off, "that it sounds mighty good, and it is good so long as there is profit to divide. But what are you going to do when instead of there being a profit the books show up a loss at the end of the year? None of them are prepared to shoulder their proportional share of the losses, which makes it a one-sided business, in which you and I do all the giving and at the same time take all of the risks. So, while your argument may be good, I want to say to you that so far as I am concerned it is both one-sided and unwelcome."

The state fairs, county fairs and a number of other fairs have come and gone and there only remains the question of how much interest clayworkers have shown in them and how much good they have gotten out of them. Reports have been heard from some who took pains to exhibit their material properly at such places and they are very encouraging. It seems that the interest aroused and the results obtained have been excellent.

East Twelfth street and Euclid and agreed to build a sixteen or twenty-story building of the most modern type of construction. Five of the biggest trust companies in Ohio have agreed to share the indebtedness. The building will be fire-proof throughout, the exterior walls being of brick or tile. The building will have light on three sides and will be about 190 by 375 feet in size. Statler is arranging with architects to have the plans completed this winter and bids let so that actual construction work may be proceeded with just as soon as the weather will permit next spring. The building proper is to cost an even \$2,000,000, with an additional \$500,000 for furnishings. It will contain about 900 rooms and will be among the six largest hotels in the country. It is to be erected in the very heart of the new shopping district, where beautiful terra cotta skyscrapers are creeping upward like mushrooms.

A twelve-story office building of good proportions is to be erected next spring by the fire insurance interests of Cleveland. It is planned to have all the fire insurance agents in the one structure, and practically all of the space has already been spoken for. W. B. Maxon, a prominent fire insurance man, and president of the Cleveland Board of Fire Underwriters, is chairman of a committee in charge of the project. The building will be of brick or terra cotta. A site and an architect are to be chosen within a few weeks and plans made

for a start early next spring. The building will cost upward of \$1,000,000.

The Brotherhood of Railway Firemen and Enginemen has decided to remove its headquarters from Peoria, Ill., to Cleveland, as the Brotherhood of Locomotive Engineers are already here, inhabiting a beautiful million-dollar structure of fourteen stories. The firemen are looking for a site on which to erect a white tile building costing from \$300,000 to \$500,000. As soon as a site is procured a firm of architects will be engaged to prepare the building plans so that work may be started in the spring of next year.

A huge knitting factory, claimed to be one of the largest of its kind in the world, is to be built in Cleveland this fall and next spring for the N. J. Rich Knitting Company from plans by Wilbur Watson, engineer. It will be 100 by 360 feet in size and four stories high. Exterior walls will be of shale and pressed brick. The National Fireproofing Company has the contract. There will be capacity for 600 operatives in the one building.

A building permit for \$225,000 was taken out during the past week to cover the structural work on the huge new warehouse for the William Edwards Company. Hundreds of thousands of brick will be used in the structure. They will be supplied by the Queisser-Bliss Supply Company. The building is to be ready for occupancy early next summer.

A splendid new brick residence costing about \$125,000 is to be built for F. E. Druary on Euclid avenue at East 87th street. The general contract has been let to Henry F. Walker, who, incidentally, is vice-mayor of Cleveland. Plans were prepared by Frank B. Meade. The trimmings will be in stone, but the main structural work is to be in brick. Considerable interest is being manifested in the new structure because of its large cost.

George S. Rider & Co., engineers, closed contracts last week for the erection of two large brick and steel factories for the Cleveland Foundry Company on Ivanhoe road N. E. One building is 20 by 80 feet and the other 60 by 170 feet in size. The general contract was awarded to the D. C. Greise & Walker Company. Work is to be proceeded with at once.

Crowell & Sherman have been awarded the contract for the construction of the \$80,000 annex to the Euclid Tennis building at Euclid avenue and East 57th street. It is to be 60 by 110 feet in size, with exterior walls of a chocolate-brown brick. It will be used for offices and light manufacturing.

Architect Franz C. Warner, of Cleveland, has awarded the contract for the construction of a new \$60,000 high school building at Fairport, Ohio, to R. J. Brakeman, of Painesville. The building will be of face brick and cut stone trimmings. The brick will be furnished through the brick department of the Cleveland Builders' Supply Company.

A four-story brick factory building 50 by 115 feet in size and four stories high is to be built for the Bishop & Babcock Company in this city by the C. N. Griffin Company, contractors. The structure was designed by the Osborn Engineering Company, which makes a specialty of factory construction work.

Architect J. Milton Dyer, of Cleveland, has about completed plans for the new \$250,000 tuberculosis sanitarium to be built by the city of Cleveland at Warrensville farm colony. The plan is to have a central administration building, a large service quadrangle and a dozen or more cottages accommodating about forty patients each. The buildings will be of hollow brick, faced with cement stucco. Actual construction work will probably begin on the plant next spring. At the present time excavations are under way and foundations are being installed.

Frank B. Meade, architect, has been chosen to design the new club house for the Willowick Club on the lake front east of Cleveland. It will cost between \$35,000 and \$50,000. Work on the structure is to be begun early next spring and completed by June 1, if possible.

A contract for a \$70,000 addition to the New Amsterdam

apartment hotel has been awarded by Architect George H. Steffens to the J. T. Paul Sons Company. The building will be of red pressed brick with interior work of concrete and tile. The structure is already up several stories in the air.

About the middle of last month a large number of the employees of the Cleveland Builders' Supply Company were the guests of the Robinson Clay Company at Akron, Ohio, going to Lakeside on a special trolley car and thence on to the State mills by launch. Dinner was served, games indulged in and an enjoyable time spent. Several officers of the Robinson Clay Products Company were on hand to greet and show the visitors about.

The Zoar Fire Clay Company, of New Philadelphia, Ohio, has been incorporated with a capital of \$65,000. The chief incorporator is Charles W. Burry. It will be engaged in the manufacture of fire clay products.

A beautiful seven-story mercantile building, with a white tile front, and thoroughly fireproof throughout, costing between \$400,000 and \$500,000, is to be built for the Commercial Building Company on Euclid avenue just east of East 9th street. Plans are to be prepared this fall and winter and contracts let so that actual construction work may begin in February or early in March. E. H. Baker is president of the company and T. M. Swetland is general manager. Architects have not yet been selected, but the proposition has been completely financed and the building is assured. The same gentlemen are building a twelve-story office building on the adjoining lot, it being known as the City Investment building.

A \$250,000 power plant is being erected for the Cleveland Electric Illuminating Company on the lake front at East 7th street. The steel frame is being erected and the masonry contract is to be let this month. The building is 270 feet square, with structural work of steel and walls of shale brick.

BUCKEYE.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



NOTWITHSTANDING THE fact that building operations in Milwaukee for the first ten months of the present year were more than a million dollars less than the same period of 1909, October was a busy month. In fact, it was the only month in which the building operations exceeded those of the corresponding month of the previous year.

To November 1, 1909, there were 3,748 permits issued, totaling \$9,865,605. This year there were 3,547 permits issued for improvements, amounting to \$8,447,994. In October of this year, however, 342 permits issued for \$786,078, as against 348 permits for \$773,364 for 1909.

This noticeable increase in building activities is a fair indication of a rushing close of the season, and it is expected that the month of November will show still greater advances. This condition is not alone true in Milwaukee, but extends to all parts of the State, and it is generally believed that stocks will be well depleted by the end of the year.

Construction work on the large office and manufacturing buildings going up in the State has reached that point where large quantities of brick are being used for facing the walls. In Milwaukee this is especially true. Numerous large structures of fireproof construction, with concrete and steel superstructures, will be faced with brick and terra cotta, and a large amount of clay products will be used in the interior work.

Paving contractors are rapidly bringing the season's operations to a close and are planning their campaigns for 1911. If press notices can be taken as an indication, the coming year will be one of unusual activity in this particular line of work. In the smaller cities it is the business streets that are first considered in regard to paving and brick will undoubtedly

continue to be the popular material owing to its ability to withstand heavy traffic.

With the exception of a few minor details the new Grand avenue viaduct in Milwaukee has been completed at a total cost of \$430,000. It is one of the most handsome structures of the kind ever built, as well as being one of the largest. The total length of the bridge is 2,088 feet. The width is sixty-four feet, forty feet of which is given to a brick roadway and twelve feet on either side to sidewalks. The amount of material necessary for its construction is enormous. There were 55,000 barrels of cement, or nearly 20,000,000 pounds; 55,000 yards of crushed stone; 25,000 yards of gravel; 620 tons of structural steel; 225 tons of reinforcing steel, besides more than a million brick. The work was commenced about a year and a half ago.

Granite block as a paving material adjacent to street car tracks has been eliminated from street specifications by Superintendent Mullen. In the future street car companies will be compelled to maintain the pavement between the tracks and a foot on either side of the same material as the remainder of the street is made. Cement or other material for gutters has also been relegated to the past by the Socialistic administration. Not a little adverse criticism has been aroused by this action. Brick manufacturers and jobbers are highly



Storage Shed Union Mining Company's Brick Plant.

interested in a statement issued by President Otto Rathmann, president of the American Granite Company, who severely arraigned the administration for its action.

The Barronett Brick and Tile Company, of Cumberland, has filed articles of incorporation with the Secretary of State. The company is capitalized at \$30,000, and the incorporators include Peter Larson, L. A. Evans and Gust Hafslund.

John O. Jones, of Racine, was the successful bidder on the paving work to be done at Kenosha next summer. The specifications call for approximately one mile of pavement and the contract price is about \$40,000.

The Red Wing Sewer Pipe Company, of Red Wing, Minn., has secured a judgment of \$2,923.48 against S. H. Cole, of Fon du Lac, Wis., alleged to be due them for pipe purchased by the defendant. It was alleged that on July 3, 1907, and June 2, 1908, pipe valued at \$16,715.01 was sold to the defendant; \$2,923.41 was unpaid. Property in Fon du Lac has been deeded to the company in part payment of the judgment.

The Ansen-Eldred Company, Milwaukee, has secured a permit for the erection of an \$85,000 factory building to be occupied by the Phoenix Knitting Company. It will be five stories high and constructed of concrete and brick.

The Milwaukee Electric Railway and Light Company has announced that it will soon commence the erection of a large shop building in the western part of the city.

A. BADGER.

Written for THE CLAY-WORKER.

FIRE BRICK PLANT OF THE UNION MINING CO., MT. SAVAGE, MD.



THE STATE OF Maryland, with its history, its scenery and natural resources, holds much of interest to every one. Being one of the first States settled, her institutions and industries are naturally of long standing and frequently of very high development. The clayworkers' interest naturally centers in Allegany county, for here are found immense deposits of high-grade fire clay and coal. The village of Mt. Savage in this county has long been famous for the fire bricks which have been made there ever since the iron industry started in this country, and is the point from which both the iron and fire brick industries spread over the adjoining States.

Fire clay was first discovered here in 1837, and at that time was employed in lining two blast furnaces in use there by the Maryland and New York Coal and Iron Company. Some of the old hollow rails made by this company as early



A Glimpse of the Kiln Yard.

as 1841 were the first to be made in America, and can still be found about the town.

The fire brick works at Mt. Savage are now owned and operated by the Union Mining Company, and the product has earned and held a fine reputation throughout the country for a long period of years. The first brick plant was opened in 1841, but was torn down after a number of years and a larger one was put up. This one in turn has been completely remodeled in the past few years in order to make a strictly modern plant of it. By 1884 the business had grown to such proportions that it was necessary to build a No. 2 plant. Both plants are still operated to their full capacity.

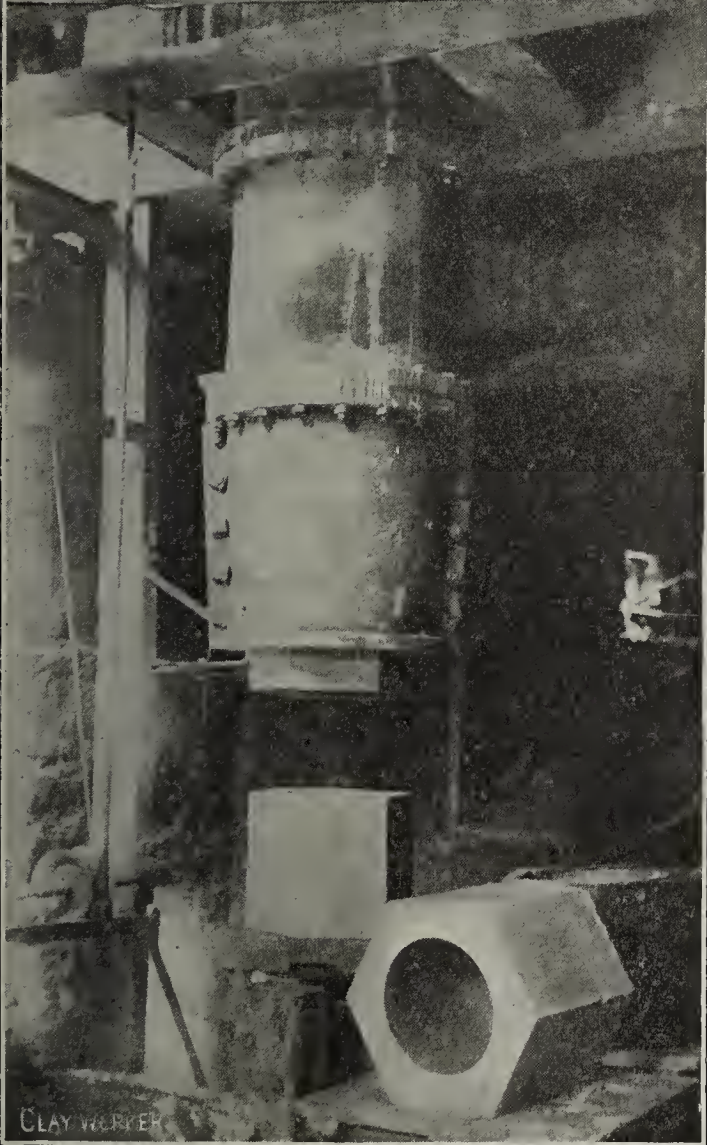
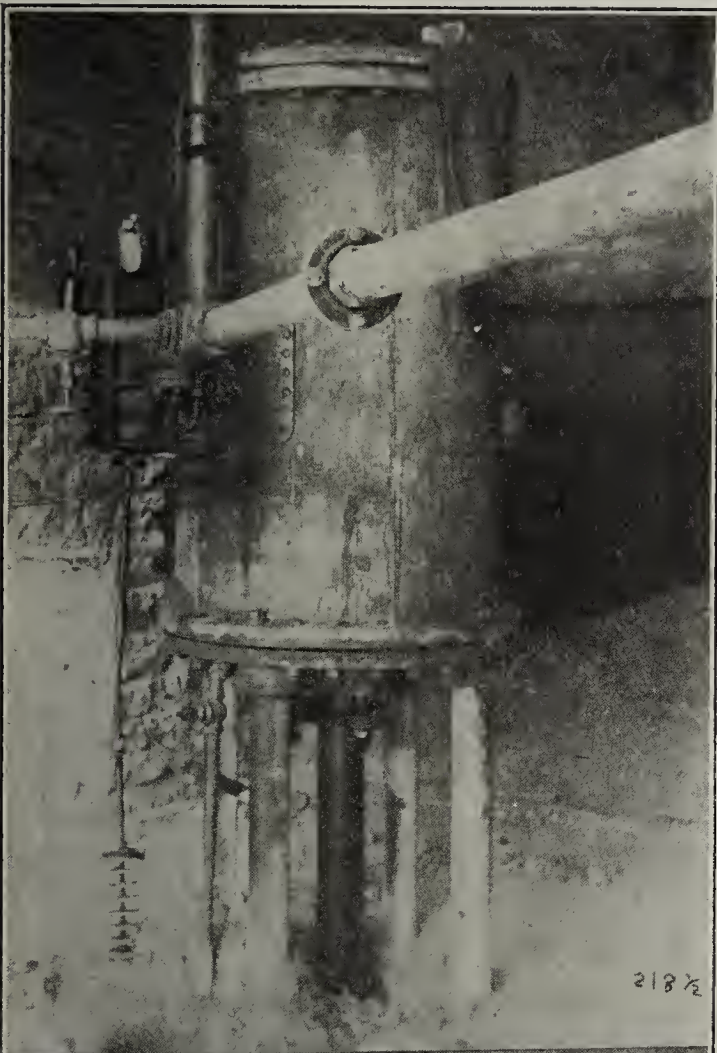
The clays used have always been obtained from Savage mountain, two and one-half miles from Mt. Savage. Both flint and plastic clays are found in abundance here. The principal vein is below all the coals found in this region and in some places lies right on the Pottsville conglomerate, which marks the base of the coal measures. The Union Mining Company has thoroughly prospected this mountain with a diamond drill and they now know the extent and character of their clay supply and have sufficient clay of the highest grade to keep them supplied for years to come.

It happens that the strata in this region, while quite persistent, dips at a high angle, so that the mines must be

worked in a way which would not be necessary in ordinary cases. This heavy dip accounts for the peculiar fact that while the clay is on the mountain top two and one-half miles west of Mt. Savage, it is also found many feet below the

are operated on the single entry system and all work is done under the direction of their mining engineer. The clay as taken out is dumped into tipples alongside of a planeway which extends from the top of Savage mountain down, a distance of 6,038 feet, to a point where the tram road ends. This planeway is one of the longest in the country and is a good example of this kind of installation.

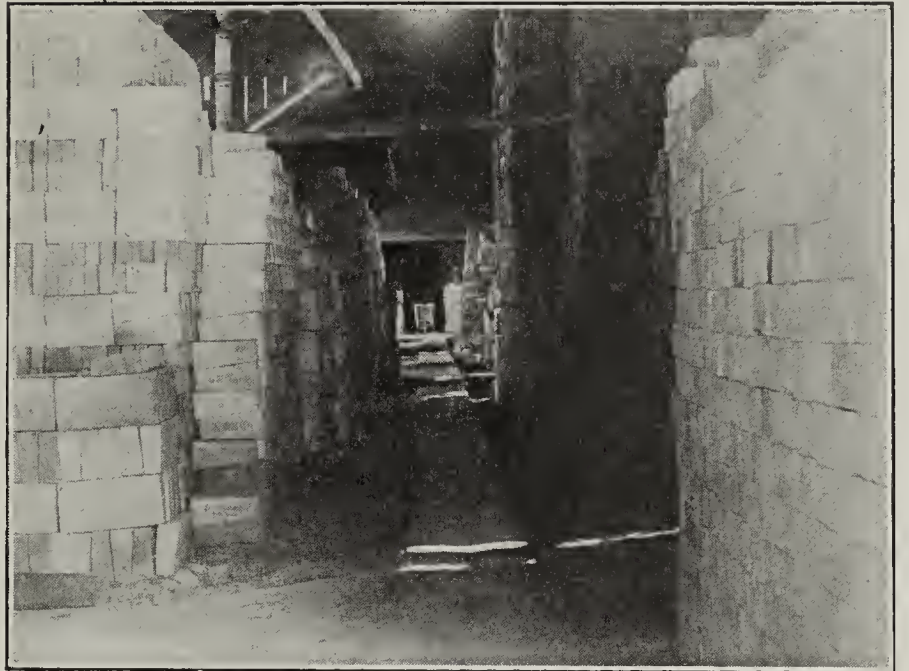
From the foot of the planeway the clay is taken over a tram road a distance of a mile and a half to the plants. Much of this road has been built on a grade of $3\frac{1}{2}$ per cent., and only about twelve empties can be hauled from the plants to the foot of the plane by the twelve-ton locomotive. When the



Steam Press for Making Brick and Tile.

surface at the village, which is located in a deep valley below the mountain.

At present the company finds it necessary to operate three drifts in order to supply the plants with clay. The mines



Section of the Stock Sheds.



Steam Heated Drying Floor.

clay reaches the plant it is dumped by automatic tipples into bins, from which it is fed to dry pans, or in case of the plastic clay, it is put on immense stock piles and allowed to weather thoroughly. At the No. 1 plant the clay is ground by two Raymond nine-foot over-gearred dry pans and one under-gearred pan. This gives facilities for grinding the clay properly for any class of brick to be made. A special effort is made to grind the plastic clay as fine as possible. The clay from the pans is elevated in the usual way and passes over fixed inclined screens, the screened material going to its proper compartment in a large bin, which is located directly over the under-gearred eight-foot wet pan.

An accurate mix is obtained for all classes of ware by

measuring each kind of clay in a fixed measuring hopper, which is suspended over the wet pan.

All brick are hand molded, and those up to thirteen-inch hand repressed. The tile and large shapes are made on the second floor of the building which covers the large hot floor, while the smaller shapes are put on the floor in the ordinary manner. This floor is covered with steel plates and is heated by exhaust steam. To assist the drying the American Blower Company has just installed a fan which distributes either warm or cold air to all points of the floor. The fan is capable of delivering 50,000 cubic feet of air per minute. The brick are burned in rectangular down-draft kilns, four of which are 60,000 capacity, while ten hold 45,000 each. The brick are burned to a temperature of about Cone 10. All coal used in burning brick is dumped from bottom-dump railroad cars into a tipple, from which the cars from which it is distributed to all parts of the yard can be filled without touching the coal with a shovel. The daily capacity of this plant is 30,000 nine-inch bricks.

The No. 2 plant, while built in a much later date than the No. 1 yard, is not now so new on account of the complete overhauling which the latter received a few years ago. All the clay is fed into a nine-foot under-gear dry pan and screened over stationary screens. The storage bins and mixing hopper used are just like those of the No. 1 yard. All the tempering is done in one eight-foot wet pan. A vertical steam sewer pipe press has been installed to take care of hexagon brick for the hot blast stoves used in connection with blast furnaces, and other similar shapes, which can be made better in this way than it is possible to do by hand. The hot floor on this plant has not been equipped to use the exhaust steam from the engine, but is fired direct by burning coal in fire boxes at the end of the dry floor, and the hot gases passing through flues under the floor and out the main flue on the opposite end.

The company has the clays and facilities for making everything in the line of refractories. This includes blast furnace and cupola linings, zinc furnace block, by-product and bee-hive coke oven brick, special bricks and shapes for gas machines, brick for boiler settings, etc., etc. These brick have been accepted as the government standard for years.

Besides operating the brick plants, the Union Mining Company mines about 1,500 tons of high-grade George's Creek coal a day. The coal mines are equipped with electric lighting, haulage and drilling machinery.

As the brick plants can use the waste of these mines, the company has a very decided advantage over both the ordinary coal operator and brick manufacturer.

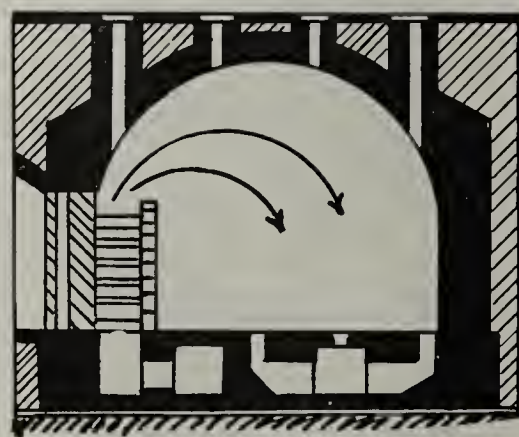
The officers of the company are: H. C. Black, president; A. T. Burr, secretary and treasurer; W. L. Hamilton, general superintendent. The general offices are at 201-4 Fidelity building, Baltimore, Md.; Oliver building, Pittsburg, and No. 1 Broadway, New York.

Fire Resisting Qualities of Gas Retorts.—As a rule gas plants do not specify nor demand the exact data regarding the fire-resisting qualities of gas retorts to be expressed in Seger cones. The gas works, however, demand a certain guarantee regarding the time the retorts and the retort kiln will hold out. The present requirements call for at least 1,000 working days in continuous operation. When the operation of the retorts are interrupted such interruption is counted as 100 working days. The main point, therefore, to be considered in the manufacturing of retorts is that they will last the required amount of working days, and this can only be obtained by a careful selection of the different clays and the grog, and also through long experience in the mixing of these materials. When a fire-resisting quality is desired it should be between cones 30 and 32. The clay substance contents of the retorts vary according to the clays used; in most cases the clay substance does not run over 40 per cent. Another point to be taken in consideration is the careful burning of the retorts, and the cooling should be very slow, as air-checked retorts do not last very long.—Tonind. Z. No. 92, 1910.



Clayworking School at Znaim.—The school has for the year 1909-10 eight new students, 14 for the second year and 18 for the third year, and also 26 special students. The interest taken by the clayworking industry in the school is best shown in that twenty factories asked for assistance regarding trouble in their manufacturing process and were furnished with the necessary data after careful investigation by the school of the causes of the defects.—Sprechsaal No. 36, 1910.

Changing Continuous Kiln to Down-Draft Chambers.—In order to burn roofing tiles with brick in a continuous kiln it is advisable to change a few chambers, four or six, in the straight end of the kiln to a down-draft principle. The cost of these changes is only small, and are only for the making of a few flues in the bottom of the kiln. In a kiln which is nearly nine feet wide the outside of the kiln can be used as flash wall and the regular wall can be built from green brick, as shown in the sketch. In larger kilns a second wall must be built. The advantage of these walls is that the cold air can not rush in all at once, and the whole kiln can safely



Section of Continuous Kiln.

be set with roofing tiles, with the exception of a few courses of brick on the bottom of the kiln. The right method for setting the tiles is also a great advantage. When the kiln is remodeled as indicated it is possible to set the tiles crosswise over another, while in the regular continuous kiln they only can be set lengthways. With the crosswise method it is possible to burn tiles two cones higher; without that they will warp. In a chamber nine feet wide and eight feet high they burned formerly 4,000 brick and only 2,500 roofing tiles, and after the change they are now burning 1,200 brick and 5,500 roofing tiles. Formerly the brick were very soft, while the present brick are hard burnt, and have a ready sale.—Tonind. Z. No. 100, 1910.

Oxidizing and Reducing Firing.—With the term "oxidizing firing" we understand the burning of a fire with a great excess of free oxygen. When this is the case the oxygen can attack such metals that are close or in the fire and oxidize them. On the other hand, a "reducing firing" is one in which no free oxygen is present, but plenty of other gases which can be burned, such as carbon, carbonic acid, hydrogen and others. A fire which is short in oxygen will always try to take the oxygen from other combinations within its reach. Through the total or partial loss of the oxygen from such combinations they are reduced to a lower oxydation point,

and the action is called "reduction." In continuous kilns we find mostly oxidizing conditions on account of the large stack, which produces a good draft. Only direct after-firing, and especially when this takes place in large quantities, we have a reducing condition. To maintain such reducing conditions for any length of time, which is desirable in many cases to obtain a great many colors, the air admission is closed down for a shorter or longer duration. When this closing of the draft is done right after a firing the reducing condition in the kiln will last for a long period.—Deut. Topf & Z. Z. No. 65, 1910.

Glaze for Stoneware Cooking Utensils.—While it is rather hard to give a glaze recipe which will bring results at once, the following glaze will give a good coating under ordinary circumstances. For all cooking ware the glazes should be fritted. For this glaze we have first to make a frit.

Frit.—Red lead, 23 parts; boracic acid, 31 parts; hydrated soda, 51 parts; flint, 12 parts, and feldspar, 8 parts. The glaze is composed of frit, 84 parts; flint, 8 parts, and kaolin, 8 parts.—Keramische Rundschau No. 32, 1910.

Automatic Feeder for Firing Continuous Kilns.—Mr. Fernand Wattebled has obtained a French patent for an apparatus which will feed automatically the fuel necessary for burning a continuous kiln. It consists of a car run over rails which contains as many troughs as there are firing places in the kiln. Driven by a small motor, the fuel is agitated, and so it is fed into the kiln. As the starting of the motor is automatic at regular intervals, the firing is done by clock-work.—Moniteur de la Ceramique No. 18, 1910.

Statistics of Ceramic Industry in Sweden.—In the porcelain and faience factories in Sweden are employed, according to the report of the Royal Chamber of Commerce, 2,088 people, and there are 882 women, or more than 42 per cent., and 483 young people, or over 23 per cent. of the total, employed. This last amount divides again into 263 boys and 220 girls. In the tile and stove factories 1,145 people were employed, of whom only 64 were women and 155 young people, but in this case mostly all boys.—Sprechsaal No. 36, 1910.

Pinholes in Glazes.—When in burning glazed ware we find pinholes in the glaze, this defect can be due to several causes. One of the common causes is that in the first stage of the firing it has been burning too reducing, and then the next stage has been too quick. The carbon and the soot have not been able to burn out of the glaze particles before they are closed by the raising temperature, and they leave the glaze when in flowing condition, and this causes the pinholes. Another cause can be traced to the materials used in the glaze. They should always be of a pure nature, and repeatedly tested. In burning such glazes the kiln should be burnt mostly with oxidizing temperature. The burner should not fire too quickly nor too often, and use good judgment in handling his fuel.—Sprechsaal No. 34, 1910.

The Actual Melting Point of Cones.—The latest data on the melting points of Seger cones is obtained from the Imperial Physical-Technical Testing Station and are scientifically correct. The testing was done in a small kiln burnt by electricity. While the melting points so obtained are strictly correct, it is entirely wrong to use these melting points for all purposes. For example, in the kilns of clayworking establishments the raise of the temperature is very much slower than in a quick-fired test kiln, and the melting points of Seger cones in such kilns is entirely different. The melting points are not even all alike in large kilns; they govern themselves according to the raise in temperature and the duration of the firing. The great value of Seger cones is in this point, as they give a corresponding idea of the conditions of the actual firing of the clay products. To express the temperature heat

of a burning in degrees of heat as indicated by cones is therefore a misleading statement, and only the numbers of the cones should be used for comparison in expressing the heat necessary to burn a kiln. In this way we obtain at all times a direct and exact statement of the heat employed in burning a kiln of clay products.—Keramische Rundschau No. 33, 1910.

Whiteware Pottery Kiln.—A kiln for the burning of glazed whiteware can have the following dimensions: Height, 14 feet; diameter, 15 feet. The diameter can be increased, but it is not advisable to increase the height. With lignite coal it should be possible to burn with a difference of one to two cones between top and bottom. The normal time for the burning of whiteware glaze is fourteen hours, and the amount of coal used is about 6¼ pounds to every cubic foot of kiln contents.—Sprechsaal No. 28, 1910.

Magnesite Export.—The magnesite factory at Radenthein, in Austria, which was started in 1909, was not completed until March, 1910. This factory is now in full operation, and all machinery is working good. It produces between eighty and ninety tons of calcined magnesite daily. The production will be considerably increased after some minor alterations are made, and with the addition of a few more kilns it is expected that the production will be increased to 150 tons daily. The total production of this factory is exported to the United States.—Tonind. Z. No. 67, 1910.

Royal Meissen Porcelain Factory.—The oldest European pottery, the Royal Porcelain Manufactory of Meissen, celebrated on June 6 last the anniversary of its two hundred years' existence. Bottger discovered in 1709 to make pottery from the white clay, and King August the Strong, of Polen, Vice-Count of Saxony, protected Bottger with his discoveries. In 1830 the factory, which had been the property of the king up to that time, was transferred to the government of Saxony, and in 1863 the present factory was erected.—Tonind. Z. No. 69, 1910.

High Price for Old Chinese Pottery.—Professor Hannover, of the Danish Art Museum, has bought recently in Berlin three ceramic vases which were made in the time of the Chinese Han Dynasty (2,000 years B. C.). Professor Hannover found these vases at an art dealer's and paid between 700 and 800 marks for each vase. The art dealer did not know the full value of these vases. Pieces of pottery from the same age were recently sold in Paris for between 3,000 and 4,000 francs. According to the best judges the vases just bought for the Danish Museum are identical with some vases which the British Museum bought recently and paid ten times as much for the same.—Deut. Topf & Z. Z. No. 71, 1910.

The Manufacturing of Saggars.—The making of saggars is just as important a part of the pottery industry as the manufacturing of the ware itself. The requirements of saggars increase as the temperature is increased. A good fire clay should be selected and the addition of some partly plastic clay or unwashed kaolin will always increase the qualities of the saggars. The grog used should be of different sizes. For large saggars coarse and medium-size grog should be used, while for small saggars only small-sized grog should be used. The fine powder or grog flour should never be used in good saggars. A clay which is high in fine sand should never be used. The mixture of the sagger clay is made according to the temperature at which they are to be used. In order to make several tests before manufacturing too large a quantity of saggars the following table will be useful:

	I.	II.	III.	IV.
Sagger clay	30	20	20	20
Unwashed kaolin	15	20	15	15
Fine grog	15	15	10	10
Grog between 1/8 and 1/4 mesh....	40	45	..	..
Grog between 1-32 and 1/4 mesh..	..	..	45	25
Shale flint clay, coarse ground....	..	..	10	30

These mixtures will also stand high temperatures and should not soften down in the fire.—Sprechsaal No. 35, 1910.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

A RECORD FOR BUILDING permits in Seattle was made during the past month. The total amounted to \$2,093,100. This record was brought about by the issuance of a building permit for the forty-two-story building which will be erected by L. C. Smith, the typewriter man from Syracuse, on his property on the corner of Yesler Way and Second avenue. Altogether 1,114 permits were issued during the month. The total up to November for the whole year amounts to \$15,396,630, as compared with \$16,749,118 last year for the first ten months, during which time the Exposition building added materially to this amount. Several big permits will be applied for in the next two months. There has been authorized by the Board of Education the drawing of plans for an-



Digging Clay at Ludwigsburg, Germany.



Noon Hour at Martini's Works, Sommerda.

other large high school building, which will have similar features as the new Queen Anne High School. Bids for this building will be advertised for before the end of the year. Bids are now taken on the new sixteen-story Hoge building, and the contract will be let November 10. Mr. J. D. Hoge, president of the Union Savings and Trust Company, which will erect the new building, states that the plans are being figured on by contractors from different parts of the country.

The material men of the State are attacking the present material lien law as being unjust to the building business. The Washington Building Arts and Crafts Association was incorporated by M. J. Carkeek as president and F. P. Allen, Jr., as secretary. The new association is backed by the American Institute of Architects, the Real Estate Association, the Builders' Association, the Building Trades Council and other similar associations in other parts of the State. The

practice has been to make the State a collection agency for the building material business, and the object of the new association is to simplify the laws and to make them apply to all building business alike. Under the present law the owner of a building quite frequently has to pay much more for the building than originally contracted for. He must not only pay the contractor, but according to the law also any lien that may be filed against the building. Large wholesale material supply houses have taken advantage of the law in giving irresponsible sub-contractors too much credit, for they have the guarantee that they can easily make their collections through the courts under the protection of the present lien law. The present law is an obstruction to the building business. It is impossible to secure loans of more than 40 per cent. value, as the building can be attached at any time by a lien. The new association proposes to secure the introduction and passage of a bill that will protect the small builder and give the owner reasonable assurance that he will not be compelled to pay more than the contract price for his building.

The common brickyards around Seattle are making ready



Stock of Marseilles Tiles at Martini's Works.

for the winter months. The demand has been very light this last month, and the prospects are not very bright for much winter business, and therefore the stocking of the yard for large supply is in most instances out of the question. Blous & Tuel have been in the market for 800,000 brick for Tacoma delivery. Prices have been the same as last month. The paving and sewer brick business has been good, and the demand is still good.

One of the largest mortgages and trust deeds filed, running for twenty years, was given by the Sisters of Charity of the Providence Hospital to the Amsterdam Trust Kantoor, of Holland, for the amount of 1,000,000 florins. The deed covers the new hospital and site, which is now nearing completion.

The Balfour-Guthrie Company has purchased 160 acres of clay land near Brennan, between Bellingham and Ferndale. The Great Northern railway crosses the property. The land has large deposits of clay, which has been used in the manufacturing of brick in the past. The new company intends to build a large factory close to Bellingham and transport the clay to the factory by rail.

SIWASH.

THE BRITISH CLAYWORKERS' EXCURSION TO GERMANY.

ONE OF THE most important events in the foreign clay-working world during the past summer was a delightful and interesting excursion made by two-score or more representative British clayworkers to Germany. They visited several of Germany's principal cities and inspected a number of clayworking plants. The delegates traveled from London to Harwich by rail, thence by boat to the Hook of Holland, and finally reached Berlin by rail, where they made their headquarters at the Central Hotel. Their stay in Berlin included visits in Potsdam and Sanssouci, a pleasure ride over the city in company with a party of Austrian, Swiss and French clayworkers, and wound up at the home of the Building Trades Exhibition. There they were royally received by Herr March, president of the Germany Institute of Clayworkers, who made a speech of welcome, which was followed by responses by the various selected representatives of the

was devoted to a trip through the plant, and interesting studies were made of the different departments in which common brick, vitrified quarries, glazed sanitary pipe, Bristolware for use in the chemical industry, retorts, etc., were being made.

The following day was open to the members for their own pleasures. The majority visited the old-fashioned town of Wurzburg, where they saw the Royal Palace, university, thirteenth century church and the attractive surrounding country. The next morning the excursionists went to Ludwigsburg, where were seen in operation Messrs. Buhners' systems of drying and burning. On this plant there is a Buhner dryer consisting of 54 chambers, of which 52 are on a level with the kilns and 22 on the first story of the building. The dryer on the ground floor is chiefly used for the drying of bricks and that on the first story reserved for the drying



The British Clayworkers at Vetter Bros.' Plant, Muhlack,

Austrian, French and British clayworkers. The delegates then visited the many exhibits, which were both interesting and instructive. The exhibits that particularly attracted the attention of the visitors were those of fine pottery and porcelain, displays of the various clayworking and technical schools, exhibits of refractory goods, brick and tiles, architectural terra cotta, sanitary appliances and chemical stoneware, clayworking machinery, including brick machines, cutting devices, clay-cleaning machines, automatic mixers and feeders, gravity carriers and engines; stands displaying models and plans and drawings of kilns, dryers, chimneys, up-to-date clayworking appliances and exhibits of raw material.

From Berlin the party went to Sommerda, where they visited the works of M. H. Martini. They enjoyed a fine luncheon and an interesting trip through the plant. This plant manufactures Marseilles tiles, bull-nosed tiles, pan tiles of every description, ornamental tiles, glazed and unglazed, etc. The following day the party traveled to Zwickau, where they inspected the Messrs. Fikentschers' works. The whole day

of flat or bull-nose tiles. Drying is done by the waste heat from a Buhner and an oblong kiln and also by heat produced by an air condenser of the waste steam of the engine. The draft in the dryer is produced by means of a Buhner fan. The Buhner kiln has 16 chambers 7 feet wide and 7 feet 4 inches high, having a total length of 450 feet, and is burned round in four days, so that the fire advances about 110 feet in twenty-four hours. The output consists of first-class brick and tile of a beautiful red color and a good ring. The party was particularly struck with the even burning of the tiles in the chambers, those on the floor of the kiln being equally sound and well burned with those in the middle and on top.

After the trip through this plant the party was entertained at luncheon by Mr. Buhner, Sr. The repast was greatly appreciated. After several speeches were made by the host and guests the clayworkers paid a visit to the works at Muhlack, which was one of the principal features of the entire trip. The British Clay-Worker in its report of the excursion had the following to say about the trip through this

wonderful plant: "These works, the visit to which was kept to the last, like the best wine at a well-ordered banquet, are the largest of their kind on the continent, and called forth the liveliest expressions of surprise at their importance from all members of the party. The buildings are, to say the least, magnificent, and the internal arrangements as perfect as it is possible to make any brickworks. One could not help being struck by the spaciousness of the various departments and the many labor-saving appliances in evidence, to say nothing of a fine engine-room, as big as some of our provincial power stations, with its 800 h. p. compound condensing steam engine. Instead of a ladder climb from one floor to another to which many clayworkers are accustomed, in this case there were broad stone steps and iron railings, more like the approach to a town hall than to the first story of a brick works.

"The clay pit was first visited, where there are two steam shovels, digging the clay into tipping cars, which are taken by an electric locomotive to the plant. The upper layer in the pit, about 10 feet thick, is used for the manufacture of common bricks, and tiles are made from the layer at the bottom, which is 30 feet to 35 feet thick. The clay for making tiles is left on the ground near the plant and watered for about two weeks.

"The clay, which is of excellent quality for the purpose for which it is used, is crushed in five double wet pans, each crusher consisting of two pans, one over the other, with two rollers to each pan. Two of these crushers, which are fed by automatic feeders, prepare the clay for bricks, and the remaining three crushers work the clay for the tiles. From the wet pans the clay for bricks passes through a machine which yields about 35,000 bricks in ten hours.

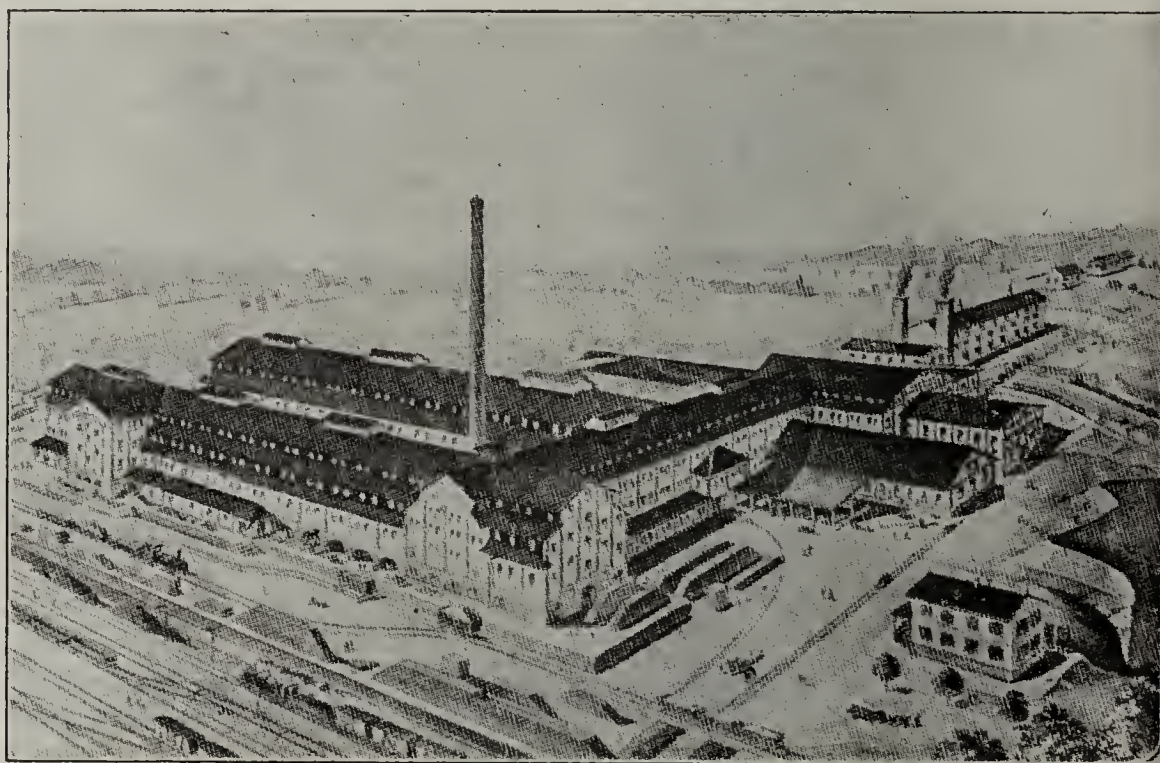
"As the tile clay needs a more thorough preparation than that for bricks, it is passed from the wet pans to what are called 'Ideal rolling mills,' where the rollers are set apart 1-25 of an inch and crush the clay thoroughly. From the mills the clay is taken by conveyors up to the first story to the revolving presses and tile machines, where Marseilles grooved tiles and grooved flat tiles are made.

"The clay before going to these presses is made into clots by machines in front of the presses, and the clots are carried along by a conveyor to feed four revolving presses, which yield about 5,000 Marseilles grooved tile each press in ten hours. The output of the four tile machines for roofing flat tiles is 48,000 in ten hours, the cutting being done on automatic tables devised by the directors of the works themselves. These machines not only cut the tile to its length, but round one end to a semi-circle.

"The three machines for flat grooved tiles turn out about 30,000 tiles in ten hours. By the conveyors and the automatically worked machines much labor is saved. It takes, for instance, only twelve boys to make 48,000 roofing tiles in ten hours. The room for the presses is 132 feet long, 100 feet wide and 24 feet high, and is well lighted. Two conveyors of about 3,300 feet each, carry the green goods partly to the dryers and partly to the upper stories for drying.

"On one side of the machine room is the engine house, with two engines, one of 700 h. p. for driving all the machines and fans, and another of 150 h. p. for working the fans at nighttime.

"A Buhrer dryer of 64 chambers is built on the ground floor and another 58-chamber Buhrer dryer is in the first story. In these dryers only roofing tiles are dried. There is space for about 200,000 tiles, and as four days are required for drying the tiles bone hard, the daily output of the dryers is from 45,000 to 48,000 roofing tiles. The drying is done with the waste heat of kiln No. 1 and the warm air produced



General View of Vetter Bros.' Plant, Muhlacker, Germany.



Rear View of Vetter Bros.' Brick and Tile Works.

by the air condenser of the engine. For drying bricks there is on one side of the chamber dryer in the ground floor a Buhrer tunnel dryer of five tunnels of 180 feet each. The green bricks are carried by trucks on rails from the machines to the tunnels, which they pass through very slowly, receiving the current of hot air from the opposite direction in which they are traveling. The trucks on leaving the dryer after twenty-four to thirty-six hours with the bone-hard bricks are drawn into the kiln, where the bricks are set to form the foot and the stoking shafts for the tile setting. The daily output

of this tunnel dryer, which is heated by the waste heat of the kilns, is about 60,000 bricks.

"There are two Buhrer kilns and one oblong kiln. One of the Buhrer kilns is of 16 chambers of 9 feet wide and 7 feet 8 inches high, the total length of these 16 chambers being about 480 feet. The daily output of this kiln consists of about 45,000 roofing tiles and 15,000 bricks, these latter being required to build the foot and the stoking shafts for the tile setting. The advance of the fire in this kiln is four chambers in twenty-four hours, or about 120 feet.

"The second Buhrer kiln is of 20 chambers, of a total

which four of ten feet diameter remove about 350,000 cubic feet of air in a minute. The fans give a perfect control of the working of the kilns and the dryers at any time, and the whole year round.

"By an ingenious arrangement of the machinery and by the conveyors and automatic feeders of the pans the enormous yearly output of more than 40,000,000 is obtained with from 250 to 300 hands. Plants of the old style could hardly do this amount of work with double the number of hands.

"Some fifty of the hands engaged are imported Italians, and the wages bill approximates to £9,000 annually. The amount spent on the works is estimated to be £150,000. The cost of carriage of bricks, etc., is 3s per ton for 100 miles, and only half this sum if the same are for export. The bricks fetch 55s a thousand for home consumption and 36s for export."

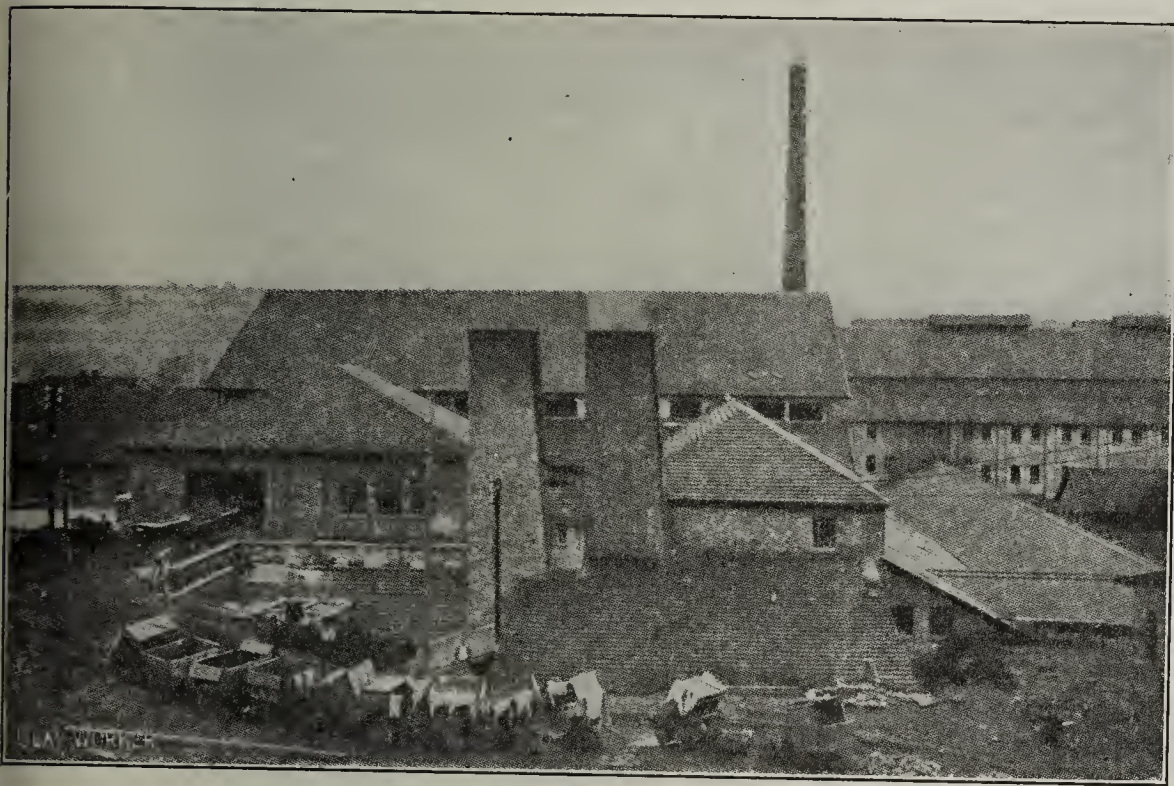
After their interesting trip through this plant the party returned to Stuttgart for the night and left for Heidelberg the next morning, where they visited the Holtestelle Cement Works, the last of the plants to be inspected.

HOW A COMPENSATION ACT WORKS.

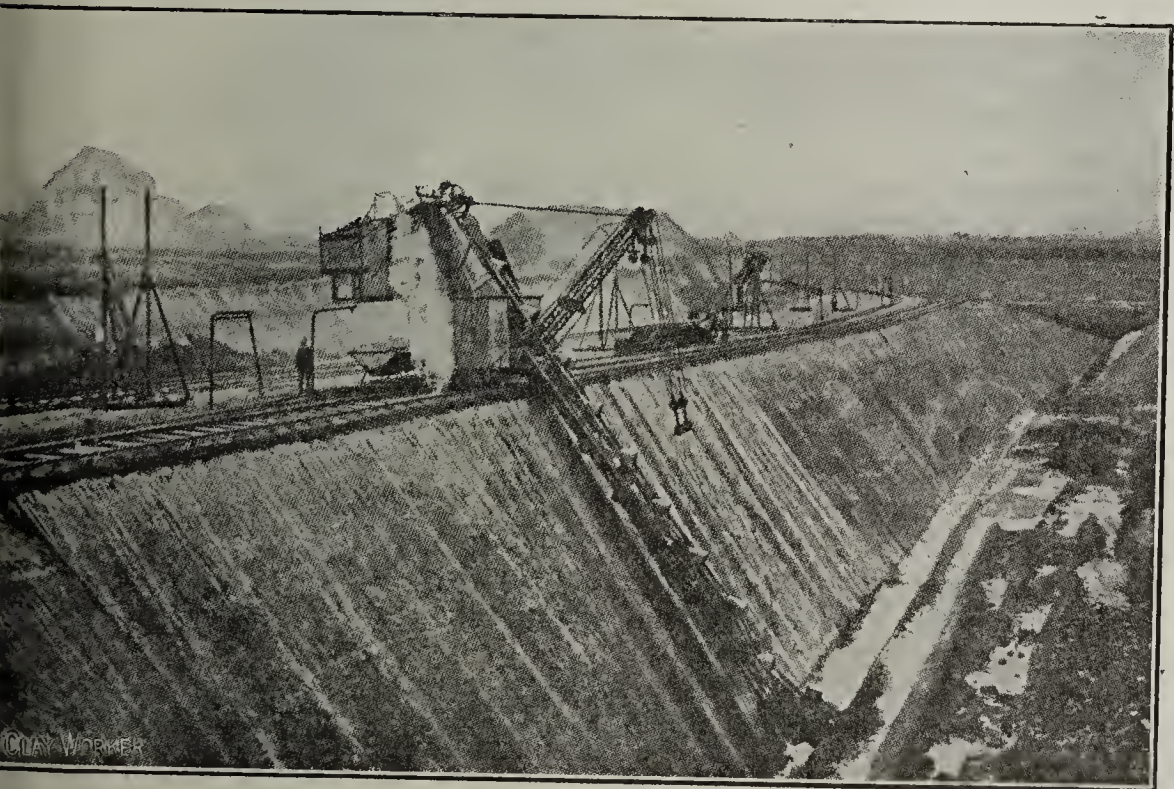
Over in England and Germany and some of the older countries they are more rigid about factory inspection and about laws of compensation in case of accident than we are here, and in England particularly there has been quite a lot of interests centering around the operation of what is known as the Workmen's Compensation Act of 1906. It is an act which in effect makes it compulsory on the part of manufacturers and other employers of help to carry a sort of insurance and to compensate them for all injury resulting from accidents. In making a report on the factory inspection for the last calendar year our Consul at Branford, England, says that the total number of accidents last year was considerably in excess of the accidents during 1904, which, he takes it, confirms a statement formally made by him that the number of industrial accidents has materially increased since the Workmen's Compensation Act of 1906 has been in operation.

Now there is, of course, a chance that while his logic is good, his deductions may be at fault. Ordinarily we figure that any kind of insurance that imposes regulations lessens the risk or danger no matter whether it is a case of casualty insurance against accidents or straight fire insurance. In the fire insurance field, for example, the insurance people

themselves have probably done more than any other class of people to lessen the danger of fire by their persistent efforts in an educational way and by regulation. The same thing really should work out the same way in the matter of industrial accidents. Of course, we can all understand there might be a natural inclination on the part of workmen to be more reckless when they know they are insured and will be compensated in case they are hurt, but it is doubtful if this is really as important a factor as we may be inclined to regard it. It is more likely that in the case of the figures from England there were many accidents of a more or less trivial nature reported, because of the compensation act that were never taken notice of before because there was nothing in it.



View Showing Stacks for Outlet of Gases Thrown Out by Buhrer Fans.



Mammoth Steam Shovel at Work on Clay Bank at Muhlacker.

length of about 600 feet, and its daily output consists of about 20,000 ridge tiles, 20,000 flat grooved tiles and 25,000 bricks. The fire advances four and a half to five chambers in twenty-four hours, or about 135 to 150 feet.

"The daily output of the third kiln is 20,000 flat grooved tiles and 5,000 bricks. It is an oblong kiln, the burning gallery of which is about 330 feet long. This kiln is also worked by a fan draught and burnt round in five days. The total yearly output of the whole plant is about 42,000,000 to 45,000,000 pieces between bricks and tiles.

"The draught in the three kilns and the tunnel-chamber-dryers and the boilers is produced by eight Buhrer fans, of

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

DURING THE entire month of October there were only twenty-six building permits issued in this city for brick buildings, and their total value does not indicate that many of them were large jobs. This gives a fair insight into building conditions in this city at the present time. It is dull, decidedly dull, and while a good many brick are still being used, the jobs are well towards completion and the prospects for business for the immediate future are not good.

One brick man who tries to look into the future and be a few months ahead of the bunch says that he considers the outlook mighty good for next year, and he bases his belief on the fact that the banks of this part of the country are full of money, that they have been holding back their loans, being more careful than for years past, and that a great many of them have more money in their vaults today than their total deposits. This is an unusual condition, and means that the banks are not making money, as they do not make money unless they loan it, as they must pay interest on a considerable proportion of their deposits and they have regular running expenses to meet, so they must loan money to get the income. If they are not loaning their money now it is certain that after election, when everything quiets down again, they will want to get their money out earning something, and then there will be a market for mortgages and building operations will begin to improve. This man says that he believes the coming spring will show a greater increase in the amount of building in this section of the country than has ever been shown before, and instead of builders being hampered for lack of funds, as at present, they will be urged to increase their operations by the demand for paper. This man was reminded of the fact that it is claimed that the most of the money of this country was under the control of a very few people, and they made the money market tight or free according to their own desires, but he replied that there was a great deal of money in this country not under the control of the few, and that money deposited in a bank which was drawing interest was only under the control of the bank so long as it was drawing interest as a time deposit, and as long as the banks had to pay interest to control the money it was a pretty expensive thing for them to keep it in their own vaults.

So far as can be detected with the naked eye there is not going to be much demand for brick in this market for the winter, and there will not be a great many of them made through the cold months. A great many of the Kansas gas belt yards are now being forced to give up their gas for the winter months, and are burning their kilns full, so they can sell them as the winter progresses. This will give the section a large amount of brick, as the full kilns will last a good while when building operations are light. It is these full kilns which the local manufacturers are afraid are going to keep them from making any money through the winter, as they fear it will force the price of brick to stay down to the present mark, where there is practically no profit in them, in fact, no profit except for the plant which is operated in the most economical manner possible.

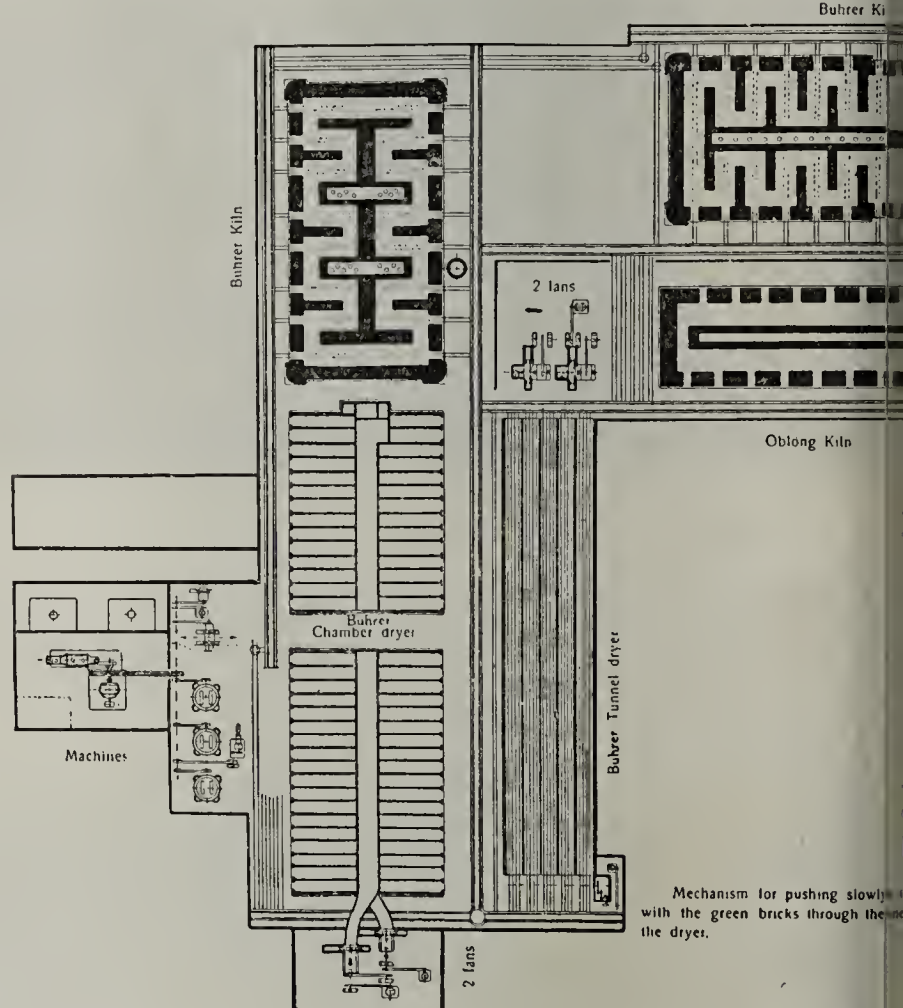
Local plants are still using some gas, but only where they are prepared to switch to coal as a fuel on the shortest notice, for they are likely to have their gas cut off without more than a very short notice. As soon as the gas is shut off the cost of burning increases, so plants which have been able to make money at the present prices would lose money if these prices continued. Here is where they fear the stock of brick on hand at the Kansas plants will effect them. At the same time they point out the fact that there is bound to be a strong demand in the early spring for brick at advanced prices, and plants which already have their kilns full and have shut down

can better afford to wait for the strong demand with high prices than to sell at cost in the intermediate time.

Several of the Kansas City plants have already shut down for the season, and will likely not operate much before spring; others are operating some of their plants and have others closed, and will continue to operate in this manner as long as they can see any profit in the traffic.

Prices are at the lowest notch reached in a long time being \$6.00 on board cars for common brick. Other grades are holding their prices well, but are not selling with any degree of rapidity, with the exception of pavers, and paving brick are in good demand at good prices.

Dealers in Kansas City who handle Kansas brick are complaining about the railroads not furnishing them with cars. Brick can be shipped in almost any kind of a car, and still cars are not to be had in many cases. Grain is filling the box cars, stock is filling the stock cars and coal keeps the coal cars busy, so some other commodity holds brick back because there is more money in hauling the other commodity. The coal strike held back this business for so long that a



Plan Buhrer's Drying System, Muhlacker, Germany.
(See page 512.)

soon as the strike was settled the mines began working at full capacity, and every coal car seems to have been busy since that time.

The Kansas City Hydraulic Pressed Brick Company has shut down its No. 1 yard, but is still operating the No. 2 yard which is so arranged that it can be changed to coal instead of gas on very short notice, and it is hoped that this plan can continue in operation throughout the winter.

Mr. Eadie, of the Eadie Building Supply Company, is very proud of the new business building being erected at 111 McGee street, which is faced with the iron-flashed vitrified brick, and the facing is attracting a great deal of attention.
KAW.

The sharp pencil experts have now figured out that there is nearly \$35 in money per capita, whereas a decade ago it was estimated that there was only \$15. Maybe this explains the cheap money and the high price of commodities, but to the man who is hard up for money and hunting more it seems as scarce and hard to get as it was when the experts told us we had only \$15 per.

NOTES ON THE MANUFACTURE OF ENAMEL BRICK.

BY R. T. STUIJ, URBANA, ILL.

ASIDE FROM THE contribution by Barringer in Volume V of our Transactions, very little literature can be found of material assistance to the prospective manufacturer of enamel brick.

Although the fundamental principles of ceramics apply to the manufacture of enamel brick, they have not been clearly pointed out in this line of business; besides, there are problems peculiar to the trade which need more thorough investigation.

The majority of men in America, who are in charge of the manufacturing end, are of foreign birth. They have brought their experiences and recipes with them, and have gone through the painful experiences of applying them to our conditions. This has been largely responsible for the prevailing belief that "we must go abroad to get clays for our slips."* If all Europe should pass stringent laws prohibiting the exportation of her clays, it is not probable that the American white ware potters and enamel brickmakers would go out of business, nor make any great sacrifices in the quality of their products.

Clays suitable for enamel brick bodies should possess low shrinkages, good bond, be free from warping and cracking, stand up well at cone 4 or higher, and burn to a light color, comparatively free from iron spots.

The plastic fire clays are well suited to this purpose. It is quite essential, however, to reduce their shrinkages by the addition of flint clay or grog. The majority of body mixes vary from 60 to 80 plastic and 40 to 20 non-plastic parts. Some clays will carry a small per cent. of sand without material injury. One mixture which has been in use for several years is composed of 70 parts plastic clay, 20 parts grog and 10 parts crushed sandstone.

Methods of Manufacture.

In general, two different processes of manufacture are recognized, viz., one fire and two fire. In both one and two-fire ware the methods of applying the veneer are practically the same, the distinguishing feature being that in the two-fire process the brick are first biscuited at a low temperature before the veneer is applied. Quite recently mechanical appliances have been introduced which promise to make some radical changes in the manufacture of enamel brick. For the present work the methods of manufacture will be divided into two general groups, according to the methods of application of the veneer.

I. Hand Dipping Process—

(a) Single fire:

1. Dipping stiff mud brick.
2. Dipping leather hard brick.
3. Dipping bone-dry brick.

(b) Two fire:

1. Dipping biscuited brick.

II. Mechanical Veneering Process—

(a) Single fire:

1. Veneering stuff mud column and wire cutting.

A favorite method of making enamel brick in Europe is by dipping a stiff-mud wire-cut brick. The face of a first quality enamel brick must be as near perfect as it is possible to make it. Since the brick are not repressed, the die is watched with the greatest care, and frequently lined up to normal size in order to take up the wear.

It is important that the brick be cut straight. A method in vogue is to cut the column into blocks which are dipped,

and after the slip has hardened sufficiently, the blocks are "squared" on a hand cutting table. This is also an effective way of removing the excess slip on the sides.

Although this method has not been exploited to any extent in America, it has many advantages well worth investigating:

1. Repressing and consequent flaking of the slip due to oil on the surface are avoided.
2. There is a better bond between slip and body since the two shrink together in drying.
3. The necessity of storing the brick until they reach leather hard consistency is eliminated.

In the leather-hard method the brick are allowed to harden by partial drying until nearly all drying shrinkage has ceased before they are dipped. The brick may be formed on a soft-mud machine, or "slush" molded by hand in wooden molds, hardened down to a stiff-mud consistency and repressed, or, more commonly, made stiff mud on a plunger or auger machine, wire cut and repressed. Owing to the variation in size and shape, the soft-mud machine method is to be recommended only where two grades of brick are to be made. By sorting the brick as they come from the repress those which are true in form and size can be used for enameling and the remainder burned for builders.

The process of slush molding and repressing by hand is very similar to that for hand-made fire brick, except that more care is taken in filling and dumping the molds and greater care exercised in repressing.

The advantages in repressing are that the brick can be "squared up," paneled and the firm's name stamped on the side. With the stiff-mud brick not subjected to the repress, the brick can be judiciously cored and the lettering stamped on the back side of the column by a roller.

A few plants are glazing bone-dry brick. Although sold as enamel brick in some cases, they are in reality nothing more than glazed brick, and should be classed as such.

To the writer's knowledge there is not a plant at the present time successfully making a white enamel brick by dipping a bone-dry body in slip and glaze. It is doubtful whether this method will ever be a success owing to difficulties encountered in cracking and flaking of the slip.

In the two-fire process the brick may be made soft-mud repress, stiff-mud wire-cut, stiff-mud repress or dry-press process. The brick are first biscuited at heats ranging from cone 08 to cone 01, then dipped in slip and glaze and given the glost fire at cones 3 to 9. A few plants making dry-pressed front brick from fire clays are enameling their culls, which are too soft for the market or off in color but otherwise having true faces.

Methods of Dipping.

In some cases the brick are given one dip in the slip and one in the glaze, but in most cases the brick are given two dips in the slip and one in the glaze. A factory which has been brought to the writer's notice sprays on the first coat and dips the second one. Two slips of different composition are sometimes employed, the first dip being made in a slip comparatively high in ball clay and correspondingly low in china clay or kaolin. Over this a second coat is applied composed of materials giving a much whiter surface.

The thickness of the slip is an important factor. It is essential that it be applied thick enough in order to form a smooth coating and to hide the character of the body underneath. In the two-fire process the brick may be porous enough to take on a sufficient coating in one dip, but for stiff-mud and leather-hard bodies one dip is seldom sufficient, except in cases where a more or less opaque glaze is applied over. The proper thickness of the slip under ordinary conditions is from three-hundredths to five-hundredths of an inch. Where the slip is thin the differences in shrinkage and expansion of body and slip are balanced by the elasticity of the slip, thus preventing rupture. If the coating of slip is too thick, its shrinkage and expansive forces may cause cracking, crazing or flaking.

The glaze applied over the slip should be quite viscous so as to prevent excessive flow and beading along the edges,

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*Instead of "engobe" the writer prefers to use the word "slip," because it is the term universally understood by enamel brick-makers.

and to overcome the absorption of the glaze by the slip and the consequent vitrifying of the slip, which would cause the dark color of the body to show through.

Defects Appearing After Dipping.

The principal defects which appear after dipping before the brick enter the kiln are:

1. Pinholes.
2. Flaking.
3. Cracking.

Pinholes.

Pinholes may occur from four causes: 1. Using a freshly made slip. 2. Pinholes or cavities in the surface of the brick. 3. Dust on the face to be dipped. 4. Bad dipping.

The writer has seen pinholes appear repeatedly by dipping brick in a freshly made slip. After ageing the slip for a short time pinholes from this cause disappeared. A week's ageing of the slip is usually sufficient.

After dipping the pinholes do not appear until the "water gloss" of the surface begins to disappear. Bubbles which appear on the surface break, leaving small cavities in the surface.

2. Air is entrapped in small cavities or pores in the dipped surface. As the water in the slip is absorbed by the brick the air in these small cavities is forced out, passing up through the slip, thus causing pinholes.

3. In dipping a dusty surface, air is entrapped in films around the dust particles and in cavities between them. As the water in the slip slowly creeps over the surface of these particles the air is released and rises to the surface.

In order to overcome pinholes caused by dust or minute cavities in the surface, brickmakers resort to "scrubbing," i. e., the surfaces to be enameled are brushed over with a stiff brush dipped in water, or more commonly, in a slip diluted with water. Other recipes which have been in use are: water, slip and glue; water, slip and molasses; water, fire clay and white slip.

4. Air may be entrapped by bad dipping. This occurs if a flat surface of the brick meets the surface of the slip when first immersed.

A good method of dipping is to hold the back of the brick in the palm of the hand with face to be dipped down. By allowing one edge of the brick to first meet the surface of the slip as in position 1, the slip is washed across the face by a rocking motion through 2 to 3. Then by the reverse motion (without removing the brick from the slip) the brick is passed back through 4 to 5. The end of the brick farthest from the operator is then raised as in position 6, which allows the excess slip to run down the edge and leave at the corner as it is raised from the slip. The brick is then quickly inverted and slid onto a bench.

The dipping should be done by an easy swinging motion to and fro without a halt in the operation. The time required for a single dip is from three to six seconds, and a careful dipper can perform the operation alternately right and left-handed, getting very little slip over the edges.

Flaking.

Flaking or shelling of the slip is due to lack of bond. It may occur soon after dipping or may not appear until the brick are subjected to the fire. Lack of bond may be caused by oil or dust on the surface, or by unequal shrinkage of slip and body. It is most frequently caused by too low shrinkage of the slip, but in some cases it is caused by too high shrinkage of the slip. In the latter case cracking and flaking will appear on the same surface.

Scrubbing the surface before dipping not only prevents pinholes, but also assists adhesion by removing dust and oil which may cause an otherwise good slip to flake.

Slips too low in plastic clay, or slips too high in kaolin or china clay, which are short or weak in character, will cause

flaking. Where flaking is due to low shrinkage the remedy is to increase the per cent. of plastic clay and decrease the non-plastic portion. Where cracking and flaking occur, reduce the per cent. of clay and substitute part ball clay for china clay or kaolin.

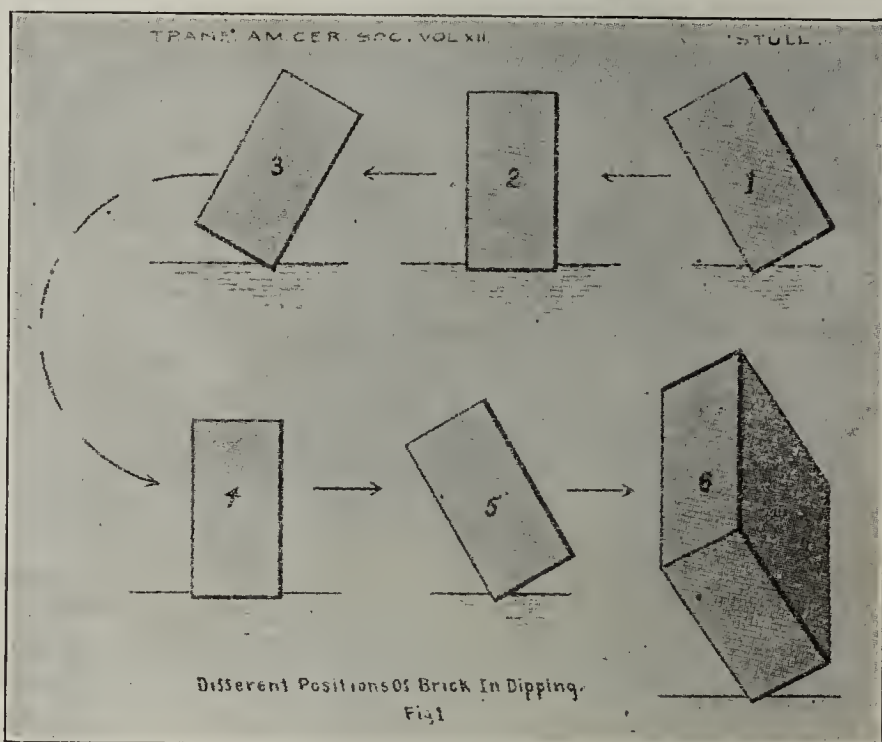
The tendencies of ball clay are to increase shrinkage, impart greater adhesive power and render the slip more yielding or ductile, by which it adjusts itself better to the brick, thus preventing rupture.

Some English recipes for slips require plaster of paris to overcome flaking. It is necessary in such cases to exercise care in burning, besides the cause of rough, blistered and scummed glazes can frequently be traced to plaster in the slip. The use of plaster to prevent flaking is unnecessary, since good, reliable slips can be had without it.

Cracking.

Cracking may be caused by: 1. Excessive shrinkage of the slip. 2. Too thick a coating of slip. 3. Too fine grinding of slip. 4. In dipping leather hard, allowing the brick to become too dry before dipping. 5. Using clays which are weak or have low tensile strength.

Cracking may be overcome by substituting a clay of low shrinkage for one of higher; or increasing the non-plastic portion and decreasing the plastic part, such as increasing



flint and feldspar or Cornwall stone, or replacing part raw clay with calcined clay.

Blunging the slip instead of grinding is to be recommended. The use of a small quantity of carbonate of soda or borax is found to be beneficial to overcome cracking. The proper amounts of these soluble materials to use is an important factor and varies in different slips, hence the amount should be determined experimentally. Slips high in clay require more than slips low in clay.

Mechanical Methods of Applying Slip.

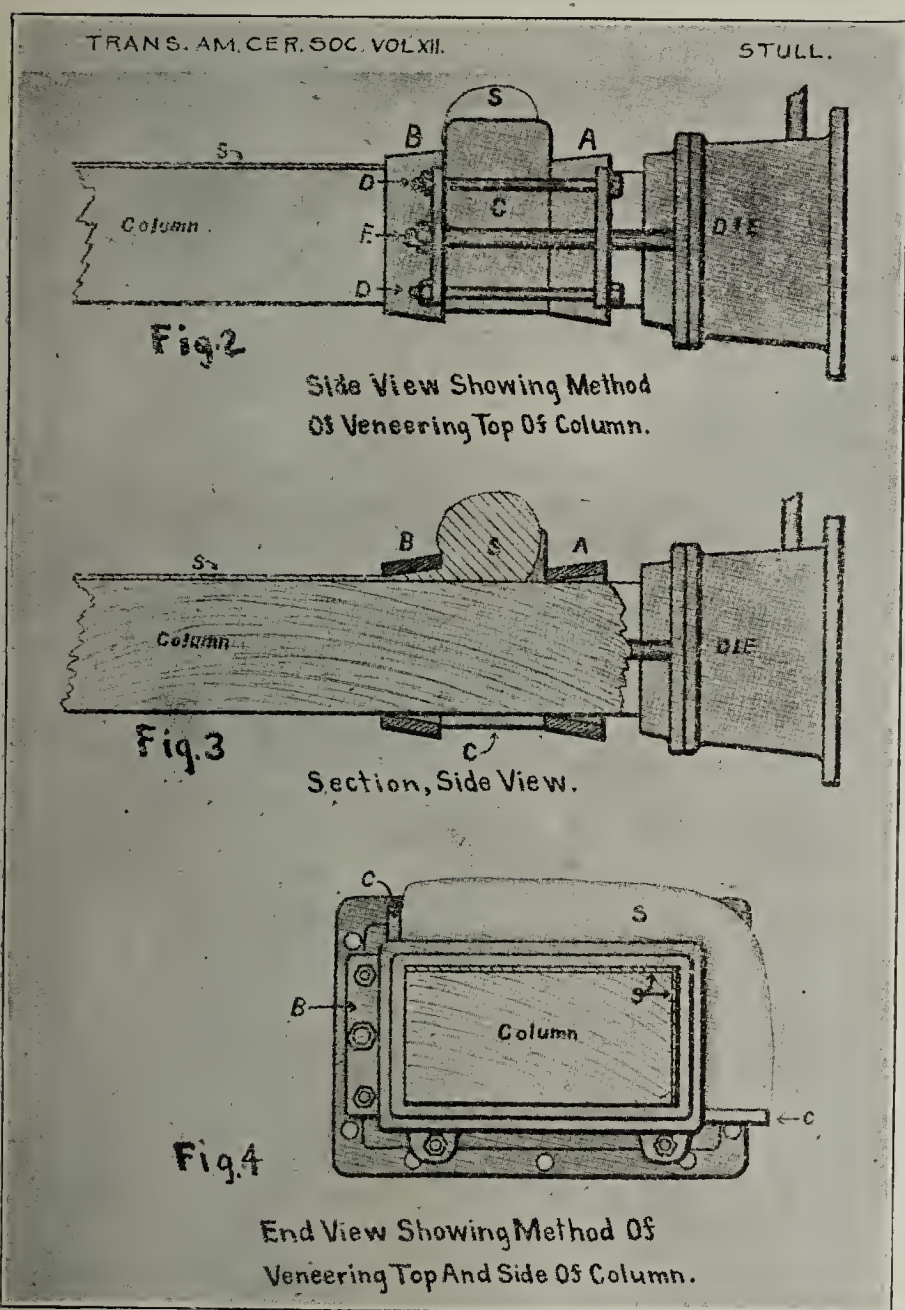
The most universal method of applying slip and glaze is by hand dipping and removing the surplus on the sides by scraping with a knife or scratching with a fine wire brush. Quite recently a leading enamel brick plant has been experimenting with a dipping machine similar in construction to that used for dipping wall tile. The machine is made somewhat larger, with a few minor changes in its construction in order to make it more suitable for its new purpose.

The automatic veneering process is one which has a great future. The process consists in veneering a column of stiff-mud clay after it issues from a die. For this purpose a veneering device is attached to the end of the die or placed

in front of it for spreading the slip in a layer about one-sixteenth of an inch thick upon the faces to be veneered.

Although there are four American patents on devices for veneering a column of clay, but one of these seems to be successful for the manufacture of enameled brick, viz., the Ramsay patent, which has recently been brought to public notice by an infringement suit.

The veneering device consists of two rectangular frames, A and B, called slickers, having two plates between, as C, one at each side. These slickers are fastened together by two bolts at each side, as DD. The apparatus is supported by the die and about one inch in front of it on two rods E, one at each side. Figs. 2 and 3 represent the apparatus rigged for making stretchers, in which case the top of the column is veneered. Fig. 4, a vertical section across the column, shows



the arrangement for making quoins, in which case the top and one side of the column are veneered. The same principle is used for making bull nose and other shapes.

"A" is the surface preparing slicker having the same inside dimensions as the delivery end of the die. "B" is the slip slicker and is five-sixty-fourths of an inch larger than the surface preparing slicker at all points where the slip is to be applied to the column. "S," the slip which is pugged to about the same consistency as clay used for pressing white ware, is placed upon the column between A and B. As the column moves forward the slip adheres to it and rolls over and over, unwinding as it were, and is spread in a coating about one-sixteenth of an inch in thickness by the slip slicker "B."

The column is cut into brick on a hand cutting table of special design and dried on a hot floor. The bricks are loaded on trucks and the glaze applied by a large sprayer

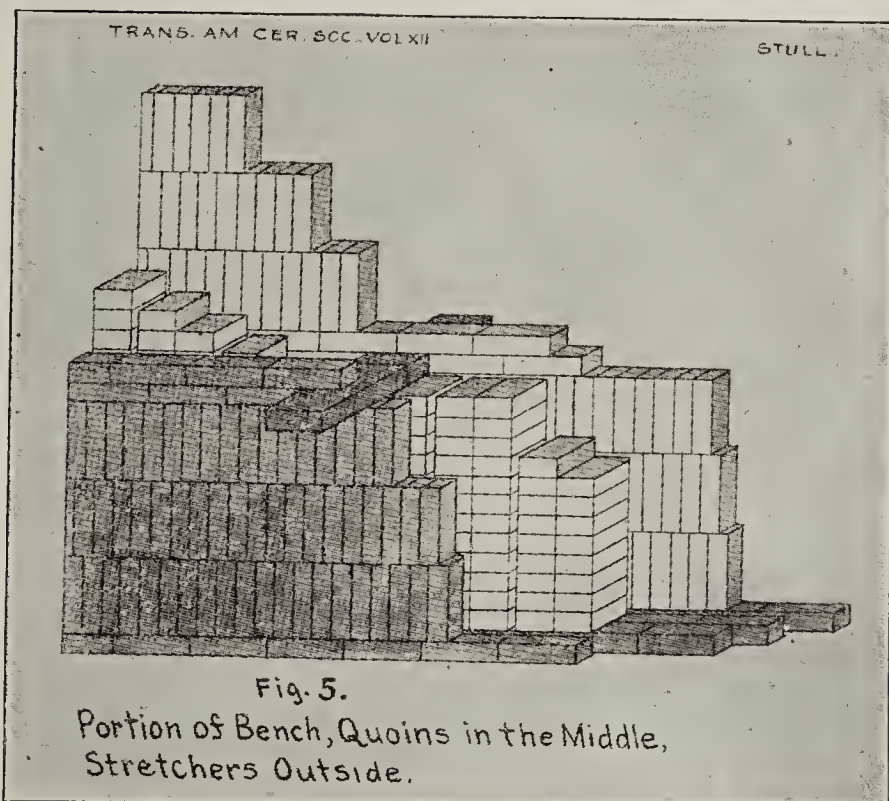
having the air and glaze under a pressure of forty to sixty pounds. The brick are then set and burned single fire.

Setting.

Of the three methods of burning, viz., open fire, burning in muffles and burning in saggers, the open fire method is most economical, but requires considerable care and skill in setting. Some brickmakers set the brick in piers, but the writer prefers setting in benches extending across the kiln. In two-fire ware the brick may be set on the flat as described by Barringer,* but for single-fire ware this method causes considerable loss in cracking owing to shrinkage. In order to overcome this difficulty the stretchers on the outside of the benches are set on end and shapes set flat in the middle in piers. (Fig. 5.)

In the single fire method the brick should go into the kiln bone dry. In the writer's experience, brick which were set wet frequently came out with a dry, rough surface, as though the glaze were underfired. At other times the glaze would be blistered or badly scummed. These brick were called by the workmen "steamed brick." Repeated burning of these brick made no appreciable difference in their appearance.

It is probable that these brick, being wet, took up sulphur



dioxide from the kiln gases, which in turn oxidized to sulphuric acid. This naturally would combine with lime and zinc oxide present in the glaze, and, since the kilns were burned oxidizing throughout, the sulphates would naturally remain as such.

NOTE.—This is the end of first part of paper. The remainder is on investigations by the author on enamel brick slips, which is given in full in the Transactions of American Ceramic Society.

KILLED BY COLLAPSE OF CONCRETE HOUSE.

Another addition to the appalling number of deaths following the collapse of concrete structures is reported from Wichita, Kas. A portion of the roof of the reinforced concrete residence of J. H. Huntzinger, nearing completion at 234 Clifton avenue, College Hill, suddenly collapsed without any warning and crushed A. B. Richter, the foreman in charge, to death. Another workman was terribly and perhaps fatally injured, and only escaped instant death by his presence of mind in clinging to a rafter when the crash came. Richter is said to have been a careful and conscientious workman. On the morning of the accident he was inspecting the building with the owner. The latter noticed a crack in the roof and called Richter's attention to it. He then left the building to order an iron beam for further support. A few moments later the crash came, Richter being instantly killed. The fire marshal has temporarily condemned the building.

CONDITION OF THE BRICK TRADE IN AUSTRALIA.

Manufacturers Threatened With Suits for Alleged Violation of Anti-Trust Act.

I HAVE JUST returned to Melbourne from a visit to the brickyards and potteries of Sydney. There, as here, the position of clayworkers is, to say the least, uncertain. For five years past there has been in Sydney and its suburban district a most unprecedented building boom, which, during that period, has, it is estimated, accounted for quite £20,000,000, say \$100,000,000. Of course, the manufacturers of brick were among the first to reap the prodigious advantages accruing from such an expenditure. Simultaneously with an all-round increase in wages through the wages board, constituted for the betterment of the working conditions of the trade, the prices of bricks were raised by 4 shillings per thousand on the former prices of 32, 35 and 38 shillings per thousand, according to grade. The press and the public were not slow to brand this trade understanding as a "combine" and the authorities were urged to take drastic action under the federal anti-trust act. The Attorney-General was for a time loud in his asseverations as to what he intended to do, but as he has done nothing, it is to be presumed that the position of the Australian brickmakers is not nearly so provocative of suspicion as their enemies would have it. He has evaded the importunities of the critics by asserting that any remarks which he may have made on the subject he wishes to be taken in quite a general way and with no intentions to express any opinions on any particular case. He then said: "The only thing which remains to be said is that if the action is not within the scope of the anti-trust act, then it should be made so. Under the existing law it is possibly a matter for the states. It seems, however, to indicate that it is a matter for the amendment of the constitutional restrictions on the commonwealth." Meantime the Sydney brickmakers are making up leeway lost during the recent coal mining strike, when all the yards were closed down owing to shortage of coal supplies, and according to the assertions of their bitter critics are "simply coining money."

Certainly I found them to be remarkably busy, taking orders for six months ahead in certain cases, and in others building new kilns at express speed on the land, for which as much as £3,000 per acre has been paid. Among the many building operations in Sydney are five new theaters. All orders have to go through the central office of the combined companies, where they are allotted to whatever yards it is deemed fit they should go.

In Victoria matters are somewhat similar. Here also the principal companies have for the past fourteen years had an agreement together, which has just been renewed for a further term of three weeks. Seven companies are in the agreement, representing an output of approximately 60,000,000 bricks per year, while five companies are remaining independent and fighting the others, they representing an output of about half the above figure. Three years ago these five were asked to join forces with the other seven on the understanding that they restrict their output to two-thirds of capacity, manufacture no fancy bricks, allow all orders to come through the central management, which would have full power of allotment of same, and agree to the central body receiving payment and hand over same to them pro rata. They refused, and have refused again to enter the new agreement, under which the participating parties have agreed to manufacture below their capacity, to restrict output and thus benefit by increased prices. During the currency of the agreement the price of bricks has been 38 shillings per thousand; formerly it was only 14 shillings, and the trade was in a very bad state owing to ridiculous competition.

The Sydney brick manufacturer claims that he makes the

best brick in the world. Over-sea visitors have told him the same over and over again, so that it is not an empty boast. The brick is manufactured from shale with a very little moisture and dry pressed, there being practically no plastic process in Australia. The result is that the brick is as nearly impervious as it is possible for a brick to be, and although not so handsome in appearance as the brick of the neighboring state of Victoria, which is of quite different material, it is considerably more durable. Visitors from other countries cannot understand how the material is taken out of the pits, put through the machines and right into the kiln well within a half-hour. I was shown by some of the Sydney brick-makers results of exhaustive expert tests with different bricks, where the Sydney article invariably came out well on top.

Desirous of securing for THE CLAY-WORKER a description of a typical Australian establishment, I chose that of the Messrs. Bakewell Brothers, of Erskineville, Sydney. I was well received by the partners, who on behalf of the journal piloted me through the big establishment. The whole area of operations is five acres in extent, and 250 hands draw £500 per week; 250 tons of coal are consumed every week and the manufacture covers bricks, pottery ware of every description, fancy tiles, bottles, etc. The bricks are manufactured from the shale, as I have already explained, and with a little moisture added are put through the well-known presses of Platt Brothers & Co., Ltd., of Oldham, England. One of these machines can turn out 20,000 bricks in ten hours. I was shown one that has been used practically continuously by the firm for a quarter of a century and was yet capable of excellent work. For the finer work clays have to be imported, although recently the firm has been making tests with samples of New Zealand clay, which may give satisfaction. I was informed, however, that as yet nothing has been found to approach the quality of the imported English china clay.

For fancy tilemaking five presses are used, the manufacture of W. Boulton, Ltd., of Burslem, England. The dies for the presses are manufactured here, as the English dies would be unsuitable owing to the wide difference in the climatic conditions of the two countries, resulting in shrinkage of the clay. The colored effects obtained by the firm in their fancy tiles are really very fine, and have been warmly commended by world experts. The variety of manufacture is very great, and one interesting feature is the making of plates, for which a number of plate machines are used, being the only ones of their kind here. Toilet ware is also made, for which the transfers have to be obtained in England, as they cannot as yet be manufactured here. Sanitary ware is another big item. In connection with the toilet and sanitary lines Mr. Bakewell was emphatic on the subject of higher protection under the federal tariff, the duty on these goods now standing at up to 25 per cent. Manufacturers are clamoring for 50 per cent. all round. At the present time sanitary and toilet ware are "dumped," Mr. Bakewell complained, most unmercifully. He reminded me that wages in Australia in the trade were quite 100 per cent. higher than in most other countries, yet in the face of this and proportionate working conditions local manufacturers are forced to fight against goods which are sold at prices in many cases considerably below the local cost of manufacture. America has often been quoted as a "shocking example" in this respect. An interesting feature of the manufacture is the department devoted to the ginger beer bottle, of which beverage immense quantities are consumed here during the hot summer, when a shade reading of the thermometer up to 110 degrees is sometimes a daily occurrence. These bottles are extremely shapely and admirably colored, and are to be seen, after having been used, from one end of the commonwealth to the other. The firm is regarded as the biggest of its kind in New South Wales and one of the biggest in Australia, and under an able management a big capacity is worked to the fullest with results satisfactory to those concerned.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

We are located at Springfield, Minn., and would like to ask if you would consider oil an economical fuel for burning brick in this locality? Is there any other company beside the Standard Oil Company from whom it can be bought? Can it be bought cheap enough to make it as cheap or cheaper for burning brick than coal?

Answer. The value of oil as fuel should be considered from two standpoints. First, as to its heating value in dollars and cents, and, second, as to the desired results that will be obtained. In our case we will use coal for a comparison. There are two types of fuel oil—natural oil as it comes from the well and the so-called fuel oils, which are petroleum oils from which the lighter volatile products have been distilled off. The crude oils are in a way dangerous to use, for if the necessary precautions are not taken the volatile hydrocarbons are prematurely gasified and are liable to cause explosions. Furthermore, the crude oils at times have more or less B. S. in them, which is an emulsion of oil and water, and this water is liable to be turned into steam, causing irregular burning, entailing explosions. Besides, the crude oils from different wells have different specific gravities and vary in their chemical constituent parts, and with each new lot it may be necessary to experiment in order to obtain the best possible combustion results. But the fuel oils proper are a manufactured article, and the larger producing firms aim to have a regularity in the finished product. The lighter volatile oils being eliminated, there is not so much danger of explosions, and the percentage of carbon being high in said fuel oils, it is not so difficult to effect good and regular combustion.

Fuel Oils

vary much in weight per gallon, ranging from 6.8 to 7.62 pounds. All fuel oils are sold per unit barrel of 42 gallons. Hence in one case, a ton of fuel oil of 6.8 pounds per gallon at 94 cents per unit barrel of 42 gallons would be \$6.58 per ton. The writer used a standard fuel oil weighing 7.62 pounds per gallon, costing 94½ cents per barrel f. o. b. cars at plant, which would bring the naked cost up to \$5.90 per ton of 2,000 pounds. Ordinarily the value of fuel oils are rated at 16 pounds evaporation of water from and at 212 degrees Fahrenheit per pound and coal at about 10 pounds evaporative efficiency. A practical test recorded in the Iron Age gave the following results: This test showed that with ordinary Lima oil weighing 6.6 pounds per gallon, costing 2¼ cents per gallon, and the coal used gave an evaporation of 7½ pounds of water per pound of coal, the two fuels were equally economical when the price of coal was \$3.85 per ton of 2,000 pounds. With the same coal at \$2.00 per ton the coal was 37 per cent. more economical, and with the coal at \$4.85 per ton the coal was 20 per cent. more expensive than the oil. These figures include the difference in the cost of handling the coal ashes and oil.

The "Engineers' Club" of Philadelphia reports the following results from actual tests to determine the relative value of the following fuels:

One pound anthracite coal—standard evaporation 9.7 pounds water.

One pound bituminous coal—standard evaporation 10.14 pounds water.

One pound fuel oil, 36 degrees gravity—standard evaporation 10.48 pounds water.

The commercial quantivalence of liquid fuel can be rated at 1 pound of oil to from 1.6 to 2 pounds of coal, which will include all the benefits derived from the use of oil, so that, taking into consideration especially the decreased wear and

tear of the kiln furnaces when using oil, oil should be preferred at equal cost of coal.

In assuming the B. T. U. value at 19,000 for 1 pound of fuel oil and 14,000 B. T. U. for 1 pound of good steaming coal and allowing an efficiency of 80 per cent., it is not difficult to figure the comparative value of these fuels. The Standard Oil Company figures that 3 2-3 barrels of fuel oil are equivalent to 2,240 pounds of good steaming coal, hence some oil refiners use coal at their plants when economy demands it.

In trade circulars the following statements may be found:

3½ to 4 barrels of oil equal to 1 ton of coal.

2½ barrels of oil equal to 1 cord of white oak wood.

2½ barrels of oil equal to 1 cord of red oak wood.

2½ barrels of oil equal to 1 cord of black oak wood.

2 barrels of oil equal to 1 cord of pine or red wood.

Equipment.

Imperfect and inadequate equipments will be sure to give imperfect and inadequate results, and when it is taken into consideration that liquid fuel has up to 22,000 B. T. U. value per pound, it can readily be seen that a little waste in the fuel oil may make it prohibitive. It is customary in the United States to use a spraying device consisting either of air or steam as the medium. The use of air or steam is dependent upon the ware that is to be burned. Air blast has a tendency to give a hot, short flame a la "Bunsen," while steam blast has a tendency to give a long flame. But in either case the burner should be true to shape, otherwise the direction of the spray is imperfect, just as any imperfect nozzle on a water hydrant gives an irregular stream. The shape of the burner should be adapted to the type of kiln where it is to be used. Regulating devices should also be used so that the minimum quantity of fuel necessary for water smoking can be properly supplied and at the same time the burner should be capable of supplying the largest quantity of fuel required for the highest possible heat obtainable. The largest per cent. of failures in oil burning can be traced to imperfect apparatus. The use of oil burners cuts the labor force down to the minimum, besides saving wear and tear on the kiln, and in figuring on the comparative cost as to coal cognizance should be taken of these facts.

Results.

A very important matter to be looked into is the better results that may be obtained with oil as compared to coal. One of the first important things is the absence of sulphur in the liquid fuels. This feature has enabled manufacturers to do away with "boxing in" enameled brick when burning with oil. Roofing tilemakers are now burning glazed tile with oil used as direct fuel. Calcareous clays can be burned without any sulphur discoloration, and there fuel oils may be used under continually oxidizing conditions and eliminating the unpleasant reducing conditions necessitated by the use of "sulphur" fuels. Take the steel industry, for instance. They find it to their interest to use oil as fuel in some plants because they can turn out better ware, even though it costs more than with use of the best gas furnaces equipped with the best types of gas producers. In "Helios" it is stated: "At the brick manufactory of May, Purington & Co., Chicago, the process of burning brick has been accomplished with oil at a cost of 36 cents per thousand, as against 90 cents to \$1.10 per thousand with wood, coke or coal. A better quality of brick is made and a large percentage of the usual loss from imperfectly burned brick avoided." But even with the last named advantage, owing to the advance in price of fuel oil the same had to be abandoned.

The results desired and obtained have a great deal to do

with it in determining the advisability of installing an oil-burning equipment or not. Then another important point is: Where can the brickmaker get his supply of oil? It has been stated time and time again that the Standard Oil Company controls the crude oil market and its allied industries, and it is an open question whether it is prudent to change to oil-burning methods when the fuel oil cannot at all times be bought in an open, competing market. The intentions of this article are to show that it would be a wise business precaution to look carefully into all the pros and cons of the oil-burning situation before embarking into the same. The various conditions cited above are only in a general way and bear no relationship to any one particular plant.

FREEZING THE BRICK MAN'S PRIDE.

There is a story of a bit of unconscious and at the same time upappreciated advertising that came in the way of a certain brick man one time that if it has a moral it is found

right spirit to carry this idea out enthusiastically, and it is easier to imagine than to describe the feelings of the brick man as he showed them over his place and pointed out this feature and that feature and the qualities of his product; how he piled and handled it, and what was said about it among the users.

The crowd of visitors took it all in with stony stares, looked at one another now and then and then looked at him as if they were on a funeral procession instead of on a junket through this man's yard and works. At first the man was surprised and in the end he was deeply hurt and offended. He didn't know whether he had a lot of ignorant fellows in tow or whether they were jealous, or just mean, but he felt like his time spent in showing them over the place was worse than wasted. It was not until some time afterwards that he came to understand the full sense of the joke.

Now, here's a queer part about the thing. Because of this



Fireproof Residence in Course of Construction, Detail of Ohio Clay Company's Hollow Tile.

in the fact that sometimes incidental things are remembered longer than the best prepared and most persistently followed plans of advertising.

It happened on the occasion of a junket quite a number of years ago. There were a number of delegates attending a meeting and a part of the program for a certain day was that they were to be shown over a certain brick man's yard and works. They were all told beforehand of the pride this brick man took in his yard and his product and were naturally expecting him to dilate upon it or else expected him to show it off to them and stand by expectantly while they praised it.

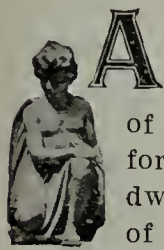
Some spirit of mischief got into the bunch and while they were awaiting preparations to show them over the place one of them proposed to the others that they go through it and view it all and make not one word of comment, just look and answer in monosyllables and stare. They were all in the

prank the brick man's yard and the incident was the theme of discussion on many occasions for many years afterwards, and through this means was probably more extensively and thoroughly advertised than it would have been had he presented each man with a framed picture of the yard and given them a few extras to hang up. It was the incident that led to the advertising, and though it was unappreciated at the time, it was about the best treatment from an advertising standpoint that this bunch of visitors could have given the brick man. It is not a thing that is likely to be repeated often because it would lose zest if it were, and it is merely an incident that shows how strange things do happen and how uncertain are the means selected by the goddess of publicity or notoriety.

Everybody sympathizes with the under dog, but no one wants to be it.

Written for THE CLAY-WORKER.

HOLLOW CLAY TILE THE COMING MATERIAL FOR HOUSE CONSTRUCTION.



A NEW FIELD in the clayworking industry is rapidly being opened up by the introduction in many parts of the United States of the manufacture of hollow building brick and tile, to be used chiefly for the construction of residences, from the humble dwellings of the workingmen to the palatial palaces of the rich.

It is not generally known to the trade that the rights to manufacture these tile, which are rapidly coming into use for house construction, can be obtained on a royalty basis, with full instructions on how to proceed. Not only can the tile be used for dwellings, but for the construction of large buildings and for the fireproofing of skyscrapers, schools and

At Cleveland, Ohio, a large plant which is turning out a hollow interlocking tile, which has many advantages, is being operated by the Ohio Clay Company, of which W. C. Denison is president. Millions upon millions of these tile have been sold in the vicinity of Cleveland and have been giving wonderful satisfaction. They are meeting a long-felt want, according to architects and builders. The company has felt the increase so keenly in its business that during the past summer it has just doubled its capacity, now being able to turn out 33,000,000 of the hollow brick each year, or about 160 tons per day. The plant is being rushed to capacity all the time and further extensions are contemplated. Bert Graham, of Cleveland, is sales manager for the concern. The Ohio Clay Company owns all rights to the patents under which the interlocking tile are made, but arrangements can be made with Mr. Denison for manufacturing rights in other territories on advantageous terms.

The tile are unique inasmuch as they firmly interlock, pre-



Handsome Fireproof Residence Made of Ohio Clay Company's Hollow Tile, With Stucco Finish.

other large structures, where the elements of safety demand that they shall be strictly fireproof.

In the large cities particularly, where the fire limits are rapidly extending, and where the building codes demand fireproof construction, the hollow building tile offers the very thing that contractors wish. It is infinitely superior to concrete, because it provides a hollow wall space, insuring warmth in winter and coolness in summer. It needs no firing and is vermin proof. What is of more practical value, however, is that it can be set up much more speedily than can solid concrete, thus cutting down the most expensive item, that of skilled labor. Cement blocks have never been popular and never will become popular because of their common, cheap look. The hollow tiles, however, treated with a coat of waterproofed stucco, present an attractive, enduring surface, which can be tinted or painted to suit any taste and furnishing a practically indestructible wall.

venting moisture from working through, no matter what the conditions are. Special tile are made for lintels and for door and window jambs. Tiles are made in different thicknesses, so that an eight, twelve or sixteen-inch wall may be built at will, with practically little more work for the latter than for the former.

There is absolutely no doubt that the next five or ten years will see a vast change in the character of residence construction. Apart from the non-burnable qualities of hollow clay tile the fact that insurance can be almost done away with makes another reason why tile houses should be built. Mr. Denison urges manufacturers of clay products to seriously consider the situation with a view to participating in the benefits which are in sight.

"Few manufacturers of burned clay building material realize that a new department in their business is just being born," said Mr. Denison to a CLAY-WORKER representative.

"The home-builder is just beginning to find out how absurd it is to build frame when he can construct the exterior walls of his house of hollow tile, stuccoed on the outside and plastered on the inside at approximately the same cost.

"Indeed, where the tile manufacturing plant is in fairly close proximity to the market, the cost of building of stuccoed tile is no greater than good frame construction, and considering the great number of advantages of the tile wall over the frame, such as durability, beauty, warmth in winter, coolness in summer, sound-proof and vermin-proof, it takes no prophet to foresee what this, in a very few years, is going to mean to the clay manufacturing industry.

"Not only manufacturers of tile fireproofing are making tile for exterior wall building, but also many of the soft-mud

extensively used as a 'backing up' material for face brick work, reducing the cost below solid brick work and improving the quality of the wall owing to its dryness and warmth. Walls 'backed' with hollow tiles require no furring.

"The National Fireproofing Company, with its great number of plants, is at the present time giving much attention to the dissemination of information relative to the merits and low cost of tile houses.

"The Denison interlocking block, advertised in this issue, has, I believe, unusual merit.

"The building department of the city of Cleveland, Ohio, recognizing the advantages of hollow tile construction, revised the building code in accord with the recommendations of a commission of engineers appointed to test hollow building



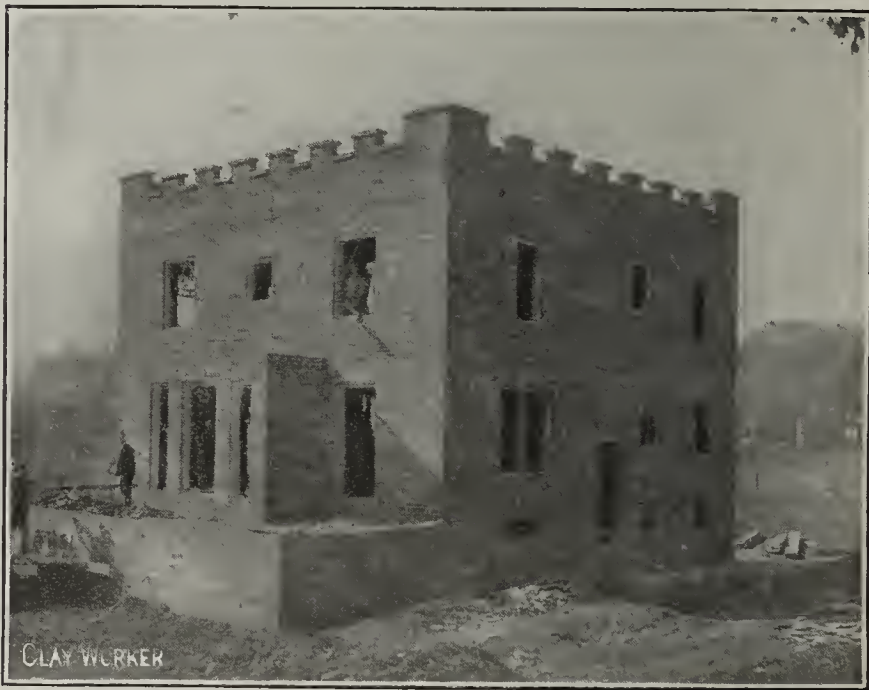
Residence in Which Hollow Tile Has Been Used in All the Walls.



Large Residence in Course of Construction. Hollow Tile Being Used.



Masons Laying Up Hollow Brick Walls.



Workingman's Cottage Constructed of Hollow Tile.

brick plants are adding tile manufacturing facilities. The time should not be far off when the frame house will be a thing of the past.

"The tiles for this exterior work are slightly heavier than ordinary fireproofing tiles and burned quite hard, nearly vitrified, with exterior surfaces grooved, so when the exterior plaster or stucco, composed of one part good Portland cement to three parts sharp sand, is applied a wall is obtained which is as enduring as granite. It is well also to apply a coat of dampproofing to the exterior of the stucco to render it impervious to moisture, so it will stay clean. This preparation is of cement base and enduring, and can be used white or tinted.

"Wherever introduced these wall building tiles are also

tiles to determine and prescribe their proper use in load-carrying walls.

"The building code as amended provides that hollow brick or blocks made from shale clay, burned to a degree of hardness such that they will not absorb more than 12 per cent. of moisture, the vertical webs of which shall not be more than four inches apart, center to center, and whose thickness of vertical webs shall not be less than 2 per cent. of their height, may be loaded not to exceed 200 pounds per square inch of effective vertical wide area. This applies to the usual make of hollow building tile and permits their being loaded about five tons per square foot.

"This load is less than one-tenth of the actual strength of walls crushed by the commission. As I have stated,

walls built of hollow tile are practically as cheap as frame walls. They are also cheaper and better than concrete where ordinary floor loads are to be carried. There are also many other advantages. Let the manufacturer of clay building products take up this matter and he will increase his output and profits."

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



HERE HAS BEEN a good, brisk demand for brick manufactured in Toledo this fall, the demand being much stronger from Michigan and the small cities in Ohio surrounding Toledo than from the city itself. While brick men are not especially complaining, as the surrounding territory is sending in enough orders to keep them busy and to hold prices up to normal, the demand from the city is not as heavy as it should be. Three of the local brick plants are running and there is an average supply of brick on hand. Prices run from \$7.00 for kiln run to \$7.50 for foundation brick delivered in the city. Building operations have dropped off somewhat recently, but some excellent contracts have recently been let, which will call for a goodly number of brick and help to round out the season in good shape. During the month of October 137 permits were issued for new structures, representing \$223,629, as against 122 permits for



Section of Wall, Showing Method of Laying Hollow Tile.

October, 1909, representing a value of \$231,195. During the past ten months the city building inspector has issued 1,383 permits, amounting to \$2,871,877, as against 1,167 for the corresponding ten months during 1909, and which represented a valuation of \$2,922,015. Among these structures were a large percentage calling for brick in their construction.

The local call for paving brick has been very light for some time, as most of the streets laid in Toledo this season were paved with bitulithic or asphalt block, but the small demand from the city has been more than made up by the brisk call from Michigan and the surrounding Ohio towns, which have been sending in heavy orders all through the season and are still calling for brick. Paving brick are selling in Toledo at \$17.50, while \$18.00, and even \$19.00, is being secured from outside points.

Local shippers are much interested in the recent indictment returned by the United States grand jury in this city against the Hocking Valley Railroad Company and the Sunday Creek Coal Company. There were twenty-eight indictments returned against the railroad company and nine against the coal company on the ground that the former company discriminated in favor of the coal concern by extending it unlimited credit in the payment of its freight bills, while the railroad demanded cash payment for handling the freight of competing companies. The allegation is made that the Hocking Valley Railroad Company is guilty of violating the famous

"commodities clause" of the Hepburn bill, which prohibits a railroad from transporting any commodity it owns, mines or produces except lumber. The railroad is accused of owning 32,185 shares of the capital stock of the Sunday Creek Coal Company, whose total capital is \$4,000,000, divided into 40,000 shares. The government accused the road of hauling freight for the coal company and accepting in lieu of money for such services notes which have been running since 1903. No effort, it is alleged, has been made to collect these notes, which have accumulated to the enormous sum of \$2,445,000. When the Interstate Commerce Commission got after the railroad it is alleged that these notes were then exchanged for unsecured bonds bearing 5 per cent. interest and expiring in 1913. The questions which the government wants decided are: "Can a railroad own a coal mine or other freight-producing company in violation of the commodities clause, which prohibits it from transporting any freight it owns besides lumber?" and "May a railroad extend unlimited credit to one company while at the same time it demands cash payment of its claims from a competitor?" The case will be fought through to the supreme court, as the government is anxious to establish the fact that the Hepburn bill has "teeth."

Word has been received here that the United States Porcelain Company's plant at North Findlay, Ohio, has been sold to J. E. Bicknell, and its name changed to the Findlay Electric Porcelain Company. It is the intention to enlarge the capacity of the plant and to add many more people to the payroll. At present about 100 persons are employed.

Among the new buildings to be erected in Toledo in the near future is a \$10,000 factory structure for the Allen Manufacturing Company, to be erected on Detroit avenue. Excavation is already under way for this structure, which is to be of brick and of modern construction throughout. The owner is the man who recently erected a magnificent pressed brick mansion on Collingwood avenue, which is one of the "sights" of the city. Another large brick factory building will soon be begun for A. Black & Co., cloak manufacturers. This will be located at the corner of Superior and Jackson streets, and the architect, George S. Mills, of Toledo, is ready for bids.

Toledoans have been much pestered by the tearing up of paved streets for one thing and another, and Councilman Gifford, who is opposed to the practice, presented a drastic resolution the other night at council meeting for the consideration of the city council public improvement committee which, if approved, will effectually put a stop to this procedure. Under the proposed ordinance no street shall be paved until all sewer, water, gas, electric light, telephone and all underground connections have been made and in place a year prior to the paving. These are to extend to the curb line. After a street is paved it is not to be disturbed during the life of the pavement. The ordinance is under advisement and a committee is investigating its advisability.

The bid of Joseph P. Degnan, of Toledo, to build the local sewerage system for the city of Bellefontaine for \$64,010.51, or \$46,000 lower than his nearest competitor, was quickly accepted by the municipal officers, and just as quickly Degnan hastened to the city to withdraw his bid, alleging that a blunder had been made when it was submitted, and that he would be ruined if compelled to perform the contract. He has agreed to forfeit his \$2,000 bond if released from the contract. Elmer McConnell, of Kenton, and McDowell & Son, of Cleveland, will do the work.

T. O. D.

Just as the Interstate Commerce Commission is getting down to work right under its new authority and getting loaded to the guards with petitions and complaints we are informed that the lawyers of the leading railroads have held a session and are preparing to attack the new law, probably on its constitutionality. So, instead of being in sight of the end, it looks like we are still in the beginning of the railroad fight.

Written for THE CLAY-WORKER.

BRICK PAVEMENTS IN BLOOMINGTON.

Indiana University Officials, After Careful Investigation, Give Preference to Brick as the Most Sanitary and Durable Pavement.

ONE OF THE CHIEF natural resources of Indiana has been given substantial recognition by the city of Bloomington, the seat of the State University. Although the western and southern portions of Indiana are rich in clays and shales, the State itself has never taken any definite steps toward the development of this extraordinary source of wealth.

Both of Indiana's neighboring States—Ohio and Illinois—have through the influence of their state universities developed and encouraged the use of brick not only for buildings but for paving city streets and country highways. In both state universities ceramic departments of a high order are maintained, and much effort is put forth in line with the development of the clay industry of these States.

When, therefore, Bloomington, after much investigation, decided to pave its main streets with vitrified brick, the representatives of the clay industry of the State felt that finally there was an expressed appreciation of this resource, which had been long withheld.

Within a short time the streets around the public square and for a block in each direction will have as fine specimens of properly constructed brick pavements as are to be found in the entire State of Indiana. And while the State University has not officially appeared in the production of this improvement the actual work has been directed by Prof. U. S. Hanna, the head of the engineering department of the university, acting as consulting engineer for the city. Just as the State University is looked to as the leader in many affairs, so will this improvement, which is the utilization of one of the State's natural resources, and built in the home of Indiana University, stand as an example of loyalty to the State, to be emulated by other communities of the commonwealth.

The decision to use brick in paving the streets in Bloomington was not reached without a deal of discussion and inquiry. The claims of the various paving materials were pressed by promoters. The methods known best by oily solicitors were employed. The city officials were beset and besought, implored and enjoined, applauded and denounced. The property owners were led into a veritable maze of petitions and remonstrances.

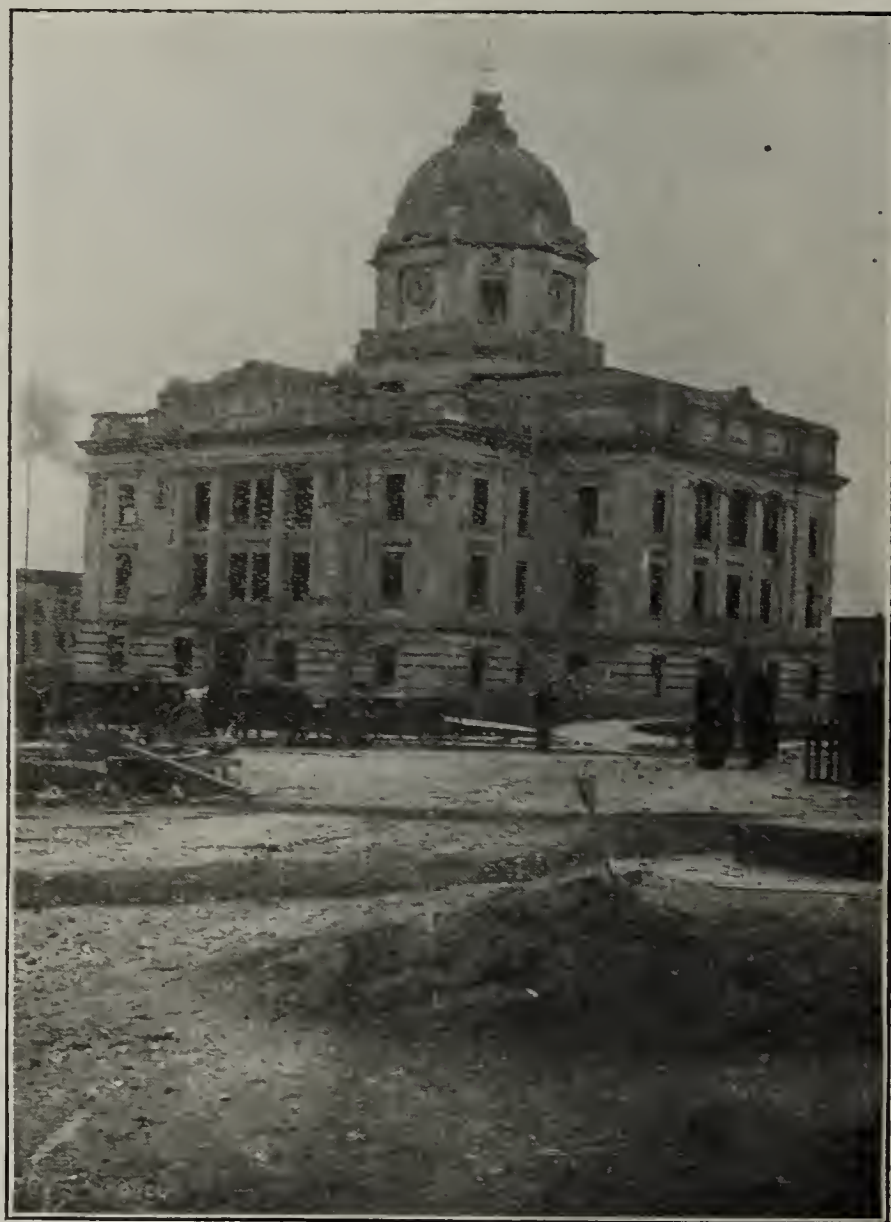
But in the end both property owners and city officers were standing firmly on the promises of a permanent roadway, built not only for today, but constructed for the next decade, and the next and the next—the properly constructed vitrified brick pavement. And through the able supervision of Prof. Hanna and his assistants such an improvement is being constructed by George T. Miller, of Lebanon, and C. M. Kirkpatrick, of Greenfield, the contractors, as will continue through the future a monument to the good judgment and loyalty of John G. Harris, the mayor, and Councilmen S. C. Freese, L. C. McDaniel, Henry Beard, James R. Fletcher and W. S. Sennett.

It has been the effort of those actually in charge of the work and of those supervising it to obtain the best possible results, and to this end the specifications for paving with brick, prepared by the National Paving Brick Manufacturers' Association, have been carefully followed. The contract covers 40,000 square yards of improvement, extending along twelve blocks, the roadway being fifty feet wide. The streets on the four sides of the Monroe county courthouse are being improved and extending along these streets one block in all directions from the square. It is altogether probable that the improvement will also be extended to the University grounds.

Especially has the one item of applying the cement filler been complied with, according to the specifications. Fre-

quently an inclination is met to use an easier or a quicker method than that specified by the National Paving Brick Manufacturers' Association for filling the space between the brick when these have been laid. But at Bloomington the atmosphere of the university prevailed—the text-book was accepted as authority and independent experimenting along other lines was not attempted. The mixing boxes were constructed according to plans drawn by the N. P. B. M. A., and the cement grout was mixed and placed on the street in accordance with the methods which have been determined by years of experience to produce the pavement that wears.

The Bloomington streets were built with a concrete foundation, upon which was compressed a sand cushion, with a surface of vitrified brick. The cement filler, composed of one part sand and one part Portland cement, was so applied to the surface that the sand and cement were still held in suspension in equal parts, as the filler flowed down between the



Monroe County Court House, Bloomington, Ind.

bricks, binding them together when set in such a way that a compact mass is the result. The edges of the brick will never break or chip under the impact of the horseshoe or the vehicle's metal tire, as is the case when the space between the brick is filled with sand or some asphaltum or other soft filler, which cannot protect the edges of the brick. The expansion is provided for in expansion joints at the gutter running parallel with the curb.

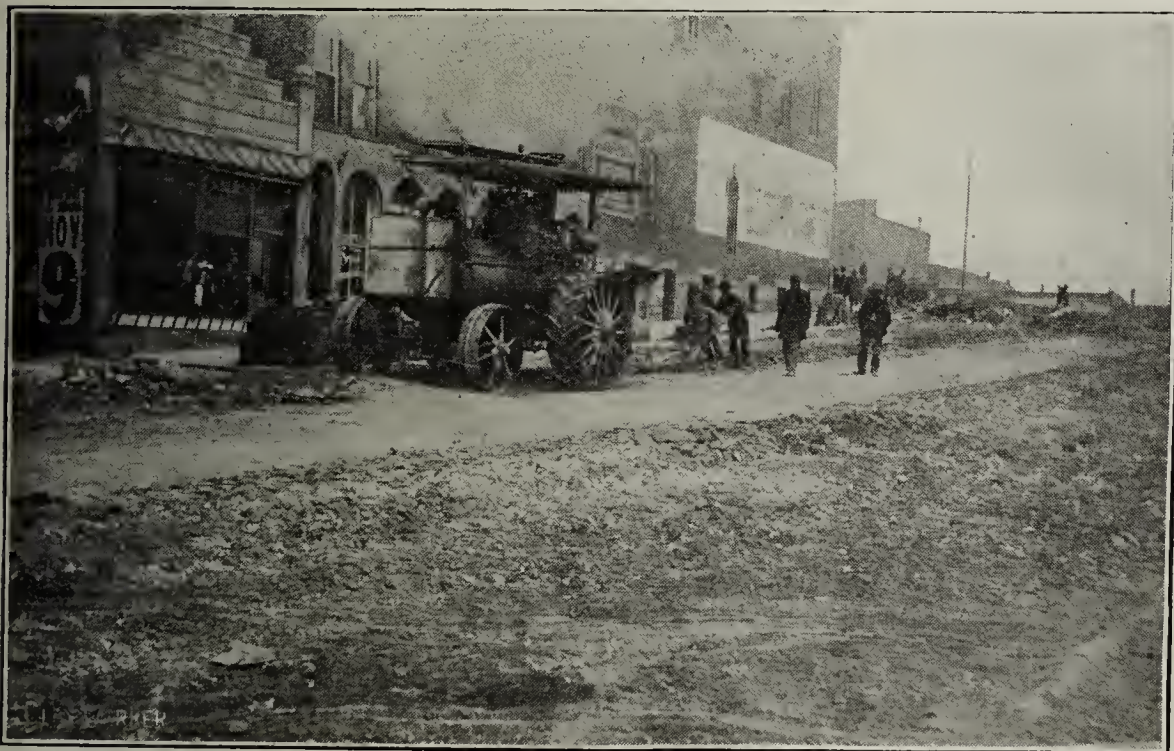
The officials of Bloomington have avoided the pitfalls which have caused some cities to produce poor brick pavements. They made their own investigations and they were convinced that a properly constructed brick pavement would be all that was claimed for it—durable, comfortable, sanitary and economical. Then they set about it to produce that sort of improvement. They were told that proper construction would be the greatest factor in producing a permanent brick roadway. They have now demonstrated to their own satisfaction



Concrete Foundation, Sand Cushion and Brick Surface of Pavement.



Application of Cement Filler by Most Approved Method.



Grading Kirkwood Ave., Bloomington, With Traction Engine.

that this statement was true. They have built correctly and they have produced a permanent roadway.

Those who have studied the question say that it is not possible to predict what will be the life of the properly constructed brick pavement, and so they say it is for another generation to learn how long the new pavements in the home of the State University will last. Such pavements have been in existence for more than twenty years, but they have not worn out and so there is nothing upon which to base the life. Those that were properly constructed, as in the case of many in Terre Haute and in Cleveland, are as good today as they were when completed. Where brick roadways have been constructed on country highways the ideal improvement has been found, and the new era of better roads for Indiana will mean the adoption of a material which will produce the best pavement with the longest life at the least cost of maintenance. Country roadways built as have been the Bloomington brick pavements will give this result. And as the university town has set the example in loyalty to the resources of the State by the construction of her buildings from Indiana stone and her streets from Indiana brick, so it is hoped that through an act of the next General Assembly of Indiana that disloyal ban against the clay industry will be removed, and all paving materials in addition to gravel and broken stone, as now only allowed by law, will be available for improving the country highways.

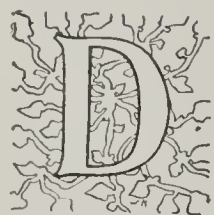
A GOOD SUGGESTION.

Lowell A. Lamoureux, of the architectural firm of Long, Lamoureux & Long, of Minneapolis Minn., and secretary of the Minnesota Chapter of the American Institute of Architects, has a suggestion which he expects to present to the next meeting of the institute for the encouragement of fireproof construction. It is that laws should be passed whereby fireproof construction is to be encouraged by an exemption from taxation, or rather, a reduction of the taxation rate for a term of years. This plan has been applied in Vienna, where an owner who replaces an old structure with a fireproof building may secure an exemption from taxation for a period of years. It is obvious that the reduction in taxes is justifiable, since a wholly fireproof building is a guaranty that the fire department will be spared protecting that building, as well as being assured of greater safety from fires in adjoining buildings spreading. The saving which would be made through lower taxes, together with the saving in insurance, is calculated to prove sufficient to induce owners to take to the assuredly fireproof form. It would be good business for the city, as it would be saved the fire hazard that would otherwise exist.

Written for THE CLAY-WORKER.

TEXAS A GREAT CLAY STATE.

A Plea for a Clayworking School.



R. WILLIAM B. PHILLIPS, director of the Bureau of Economic Geology of the University of Texas, who has been investigating the clay resources of this State, says:

"The total value of clay products of Texas, down to and including the year 1908, is in excess of \$28,000,000. The annual value is now about \$2,000,000 and is increasing steadily. In the year 1908 Texas ranked fourteenth in the value of its clay products, the other thirteen, in order of importance being Ohio, Pennsylvania, New Jersey, Illinois, New York, Indiana, Missouri, California, Iowa, West Virginia, Kansas, Kentucky and Washington. Texas ranked twelfth in 1907 and sixteenth in 1906. For many years Ohio has ranked first, and in 1908 it yielded \$26,622,490 worth of clay products. Yet Ohio has no better clays than Texas has. I will call special attention to the fact that whereas Ohio, with about the same population as Texas, but with an area only about one-sixth as large, produced, in 1908, \$13,535,199 worth of higher priced and better grades of clay articles, such as red earthenware, stoneware and yellow and Rockingham ware, C. C. ware, white granite, semi-porcelain and semi-vitrified porcelain, sanitary ware and porcelain electrical supplies; in this same year Texas produced \$156,173 worth of these articles. In 1908 the value of Texas clay products was as follows: Common brick, \$1,285,857; front brick, \$154,298; drain tile, \$5,275; pottery, \$156,173; other articles not separately given, \$385,951; miscellaneous, \$10,142. Total, \$2,066,735.

"In other words, while the value of the pottery made in Ohio is about 50 per cent. of the total value of the clay products there, the value of the pottery made in Texas is a little over 7 per cent. of the value of the clay products made here. By far the greater value of the Texas clay products is in the lower-priced wares, such as common brick, etc., although we have here a much larger variety of clays than Ohio can produce. I have just received a letter from one of the leading manufacturers of high-grade china and porcelain ware in Ohio. In speaking of certain articles that they had made from Texas kaolin he makes the following statement:

"We marketed this product for two years and have sold it throughout the entire territory that we cover. It is unquestionably the best clay we have ever used and produces a ware that is equal in every respect and superior in many to the imported product. Our only regret is that this kaolin cannot be delivered to us in a commercial way, and we sincerely hope that some time in the near future the people of your State will be awakened to the fact that they have resources in this kaolin deposit that are almost equal to precious metal deposits."

"This is pretty strong language to come from Ohio with reference to a kaolin from Texas, but such is the case. Another and equally as famous an establishment writes from New York:

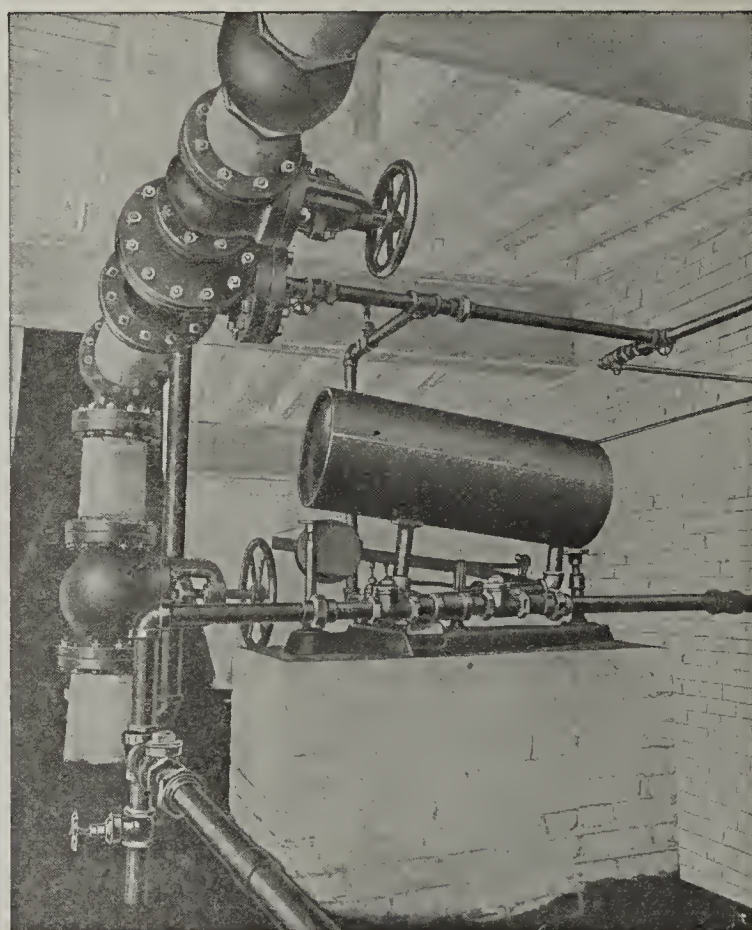
"I will mention that in the course of our pottery work, although we do not solicit testing work, we have come across two interesting Texas clays for our special work in porcelain. One is a kaolin which for whiteness, translucency and plasticity has no equal in the world. It has many bad points, but we have adopted it for our finest porcelain pieces. Another is a sample of Texas kaolin which has the remarkable property of vitrifying at 2,100 degrees Fahrenheit. We have heard only so far of some Japanese clays having this property."

"Instances of the remarkable properties of other Texas clays could be multiplied, but we forbear. Suffice it to say that we have in Texas clays of almost every known composition and quality, from the ordinary brick clays to the most

superior kaolin suitable for the finest china and porcelain ware.

"With such a wealth of material one would naturally suppose that there would be somewhere in Texas a clay school, where different clays could be studied and where instruction in the nature and uses of clay could be given systematically. There is no such place. There is not one single place in Texas where clays can be tested according to the demands of modern potters, etc. There are many places where chemical analyses can be made, but without physical tests these are almost worthless. If any inquiries are made as to the behavior of our clays in actual working, as to plasticity, air and fire shrinkage, absorption of water, color on burning, fusibility, etc., they have to be sent to St. Louis, to Ohio or to New York. In all the Southern States, with a population of 25,000,000 and an area of 753,000 square miles, there is not today a single place where full tests of the value and uses of clays can be made. In 1908 the value of the clay products from these States was something over \$12,000,000, not one-half of the value of such products from Ohio.

"In the Ohio State University there is a course in the study



Return Trap Installed at E. M. F. Motor Car Company's Plant.

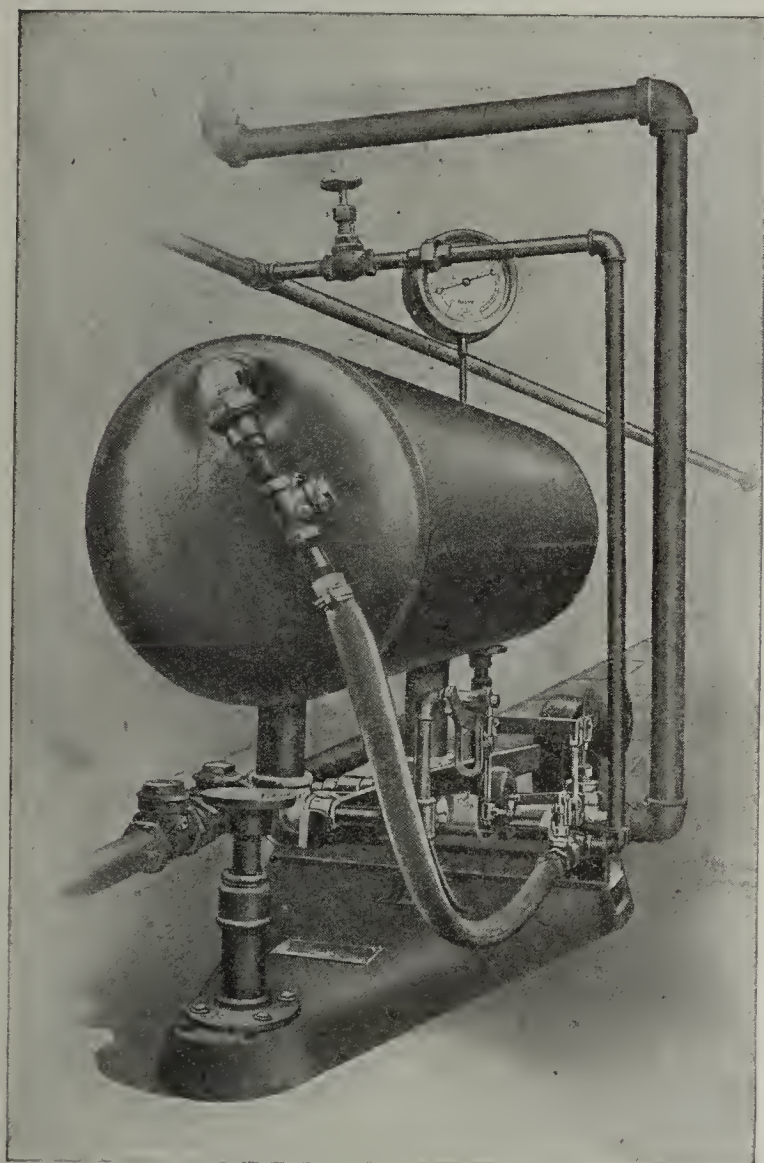
of clays that lasts for three years after the first year spent in preliminary training. It includes mathematics, physics, chemistry, geology, metallurgy, mechanics, civil engineering, English, modern languages, drawing and shop work, in addition to special work in the technology of clay. In the second year 26 per cent. of the total time is given to clays; in the third year 41 per cent., and in the fourth year more than 50 per cent. Does it pay to have such a school?

"In the year 1898 the total value of the clay products of Ohio was \$12,412,437. In the year 1908 it was \$26,622,490. In 1898 the value of the pottery was about 44 per cent. of the total value of all the clay products. In 1908 this had risen to 50 per cent. The impetus given by this clay school has been imparted to the manufacturers of the better qualities of china and porcelain, so that there has been a steady increase in the production of articles of greater beauty, of higher excellence and of enhanced value. A ton of clay made into brick is worth from \$12 to \$16; made into better brick it is worth from \$20 to \$30; made into china and porcelain ware, it is worth from \$100 to \$200, and even a great deal more."

THE MOREHEAD CONDENSER TRAP.

A NEW METHOD of draining exhaust steam and reducing pressure heating systems of both water and air, and with the same agent create a vacuum to insure positive and rapid circulation, has been devised, patented and put into successful operation by the Morehead Manufacturing Company, of Detroit, Mich.

The new device is known as the Morehead Condenser Trap and is in general appearance similar to the old and well-known Morehead return steam trap. In detail, however, the condenser trap differs from the return trap in the addition of a cold-water connection made through a flexible tube with the tank of the trap. The flexible connection terminates in a perforated pipe inside of and running the length of the trap tank. In short, the condenser trap is nothing more or less than a combination of the principles of the jet condenser and the Morehead automatic return steam trap.



Morehead Condenser Trap.

Connected to the return line of vacuum heating systems where a difference of pressure is maintained between the ends of the system the line condensation and accumulating air is taken into the tank of the condenser trap as in the case of the return trap. but with the added pulling power of the vacuum created in the tank of the condenser trap.

When the steam is turned on in the heating system, the various lines of which are full of air, the cold water supply valve, as shown in the sectional view of the trap, is opened slightly. As the condensation from the return lines and the condensing water fills the tank the latter tilts, opening the live steam valve, allowing the steam pressure to enter and discharge the water contents into a return steam trap above the boiler or into an open heater.

As soon as the water is discharged the tank containing the steam which is left after the water is discharged resumes a horizontal or filling position. The tank returning to its horizontal position, automatically opens the control valve on the

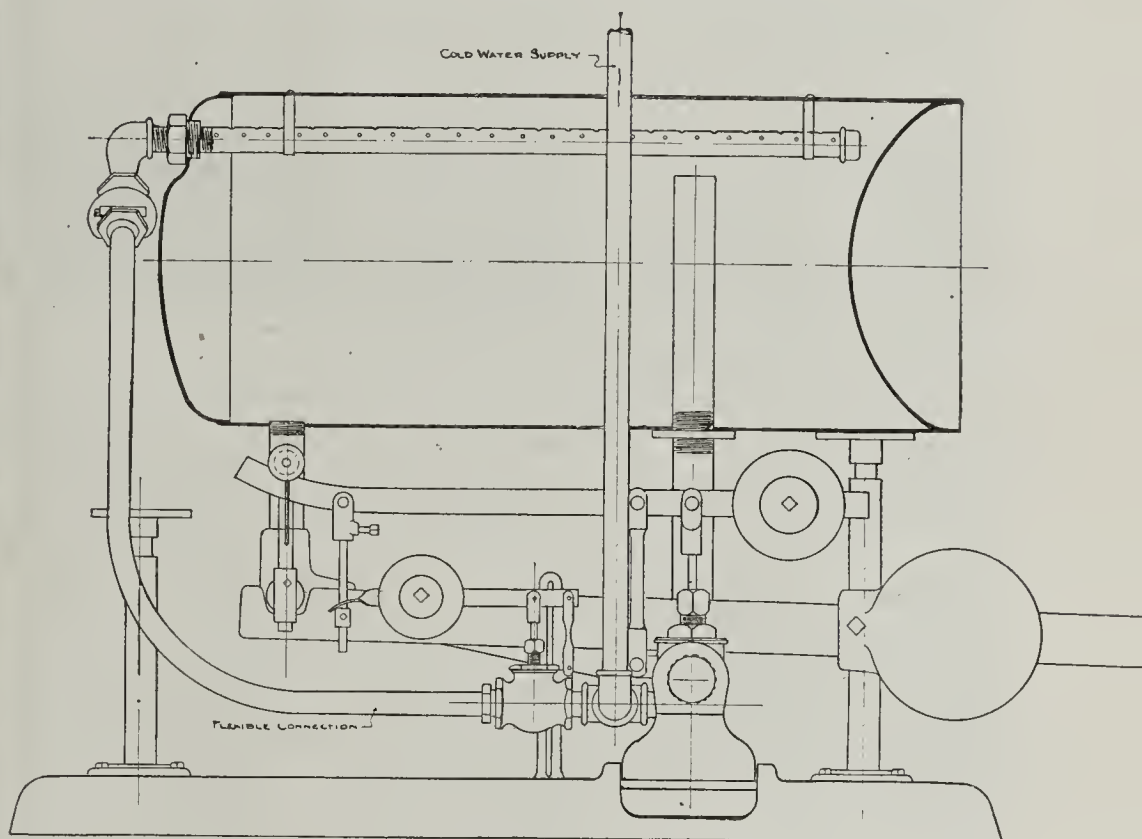
cold water inlet and allows the cold water spray to come in contact with the live steam contained in the tank. This cold water condenses the steam and forms a vacuum in the tank of the trap which in turn performs the usual functions of created vacuum in heating systems of pulling the condensation from the lines to be drained.

The cold water supply is furnished either from city water works or a tank or any other source that is available for that purpose. Particular attention is called to the fact that a surprisingly small amount of water is required in the condensing process.

A receiver is always used in connection with the condenser trap, the water seal in the receiver taking the place of thermostatic valves on the heating system. The condenser trap is used as the lower trap, taking the place of the return trap in the Morehead standard double trap installation, the lower or condenser trap discharging to the return trap placed above the boiler.

As the study of a typical installation is the more interesting and convincing method of describing the workings and advantages of the new condenser trap, the installation at the E. M. F. Motor Car Company, of Port Huron, Mich., is referred to and illustrated herewith.

The plant of the E. M. F. Motor Car Company is a two-



Cross-Section View of Condenser Trap.

story brick structure, equipped with a large extent of glass area for profuse day lighting. Electric power from an outside source being used exclusively for operating the factory, a special 125 h. p. boiler was installed for heating purposes. On top of the boiler is located a No. 4 Morehead steam trap and boiler feed, receiving the condensation from the No. 4 Morehead condenser trap situated alongside of the boiler on the floor of the boiler room. Under the floor at a depth of about five feet is the receiver connecting the return lines and the condenser trap.

The piping in the entire system is equivalent to 60,000 feet of one-inch pipe. The main supply pipe is brought up to make an overhead feed, using wall coils throughout the factory and cast iron radiation in the office. The boiler room and office are located at extreme ends of the plant.

The returns from all the radiators run along the first floor. When a door is reached the pipe is carried under the door and brought back to the floor, thus forming a pocket and providing no fall whatever in any of the return lines.

The returns before reaching the boiler house are gathered into one three-inch main return pipe, which carries the con-

condensation to the receiver located in the pit below the condenser trap. From the receiver the condensation is drawn into the condenser trap, thence lifted to the return trap on top of the boiler, which in turn discharges it into the boiler. The distance in height between the two traps is about fifteen feet.

A pressure of from 25 to 40 pounds is carried on the boiler and reduced to $1\frac{1}{2}$ pounds on the system. With this initial pressure of $1\frac{1}{2}$ pounds the condenser trap is pulling a vacuum of twenty-five inches.

During a test run in zero weather this plant was operated for twenty-three successive hours on three tons of Saginaw slack coal, a highly economical performance, according to the management of the plant. They further state that there was not a minute's trouble or even the expense of a cent connected with the working of the traps during the entire winter

Ind. The Maumee Brick and Tile Company, of the same city, installed the system last spring. The economic results following the installation of the condenser trap at the above institutions led to the adoption of the system by a number of the large manufacturing plants in the same territory.

THE MANUFACTURERS' EQUIPMENT COMPANY.

The above is a new company in the field of general manufacture, but withal a most enterprising and energetic one, recently organized at Dayton, Ohio. Its organizers are all young men of sterling integrity and thoroughly familiar with and able to handle the lines which they will manufacture and sell, and which will be more fully mentioned further along in this article.

The personnel of the new company consists of J. L. Schroll,



OFFICERS OF THE MANUFACTURERS' EQUIPMENT CO., DAYTON, OHIO.

1. I. M. Justice, Vice-Pres. 2. H. G. Mattern, General Manager. 3. J. L. Schroll, Pres. 4. W. H. Sachs, Secretary.
5. E. M. Mahlmeister, Treasurer.

period. To one acquainted with the care and operation of steam traps it is of interest to know that during the foregoing mentioned period not a piece of packing was put into either machine, the return trap or the condenser trap.

In addition to the foregoing mentioned typical installation the condenser trap has been successfully applied to reduced pressure and exhaust heating in connection with fan ventilating and heating systems and dry kilns. In every case there has been shown a reduced consumption of steam, an increased efficiency in the systems and an especially marked reduction in the coal bills.

At this writing the Morehead condenser trap system is being installed in a number of the large textile mills located in the New England district.

The condenser trap was tried out successfully during all of last winter in the Fort Wayne High School at Fort Wayne.

president; I. M. Justice, vice-president; W. H. Sachs, secretary; E. M. Mahlmeister, treasurer, and H. G. Mattern, general manager. These names will undoubtedly have a familiar appearance to many of the clayworking fraternity of the United States, for the reason that during the last fifteen to twenty years three of the members of the company, Messrs. Schroll, Justice and Mattern, were actively identified with the trade, because of their connection with a well-known clay machinery manufacturing concern, while the remaining two were with the same people for about five years, all of them having been either officers or heads of departments.

As the name of the new company implies, they will do a general manufacturing business, but their paramount purpose will be to serve the manufacturers of clay products. Their line will include a complete range of equipment for the manu-

facture of brick and other clay wares by the stiff plastic and dry press processes, and also a complete stock of supplies of all kinds, such as barrows, trucks, screens, etc.

They will place on the market the Justice radiated heat dryer systems for drying all classes of clay products, such as paving brick, stiff-mud face brick, building brick made by either the soft-mud or stiff-mud processes, drain tile, fire-proofing and roofing tile.

Mr. Justice has been constantly engaged in the field of clayworking for more than twenty years. During the early years of his service in this line he was a careful student of the art and applied himself diligently, and by hard work acquired a very broad knowledge of the manufacture of clay products generally. He was superintendent of several large clayworking plants and also designed and constructed a number of good brick works. In all this work he was most successful. For the past ten years he has designed and exploited the sale of clayworking machinery, kilns and dryers, and the subject of drying clay products became a specialty. His work in this particular line led to designing, developing and demonstrating that the Justice radiated heat system is the simplest and most efficient for drying all kinds of clays and clay ware of any dryer ever offered to the trade.

In addition to this system they will sell an improved type of waste heat dryer which will be new and novel in many respects, but which has already proven its superiority over all the old types now offered on the market.

All those desiring special information are requested to address the company upon the subject.

Written for THE CLAY-WORKER.

SEEN IN JERSEY.

Brickmaking in Jersey is at an end. The season has been as good as could be expected and the situation has not been better for some years at the close. Nearly all manufacturers had a good market for their stock during the year and at the close many have sufficient contracts to care for whatever is left. The quality of the brick this year has been good, owing to the almost continuous dry weather, and buyers have taken larger quantities in many instances because of this fact. Raritan River stock is quoted in Newark at \$6.75. The supply houses are not buying heavily, thus indicating that they are making no important provisions for winter storage, railroad facilities being such that they can obtain what they want almost as easily without the necessity of buying and storing in the fall for what they may want in the winter.

There is a steady demand from all New Jersey consuming points and sales are made in quantities which indicate that buyers still have orders of importance to fill. A good many more than usual of the Raritan district product has been utilized in New Jersey construction during the season and there is still considerable demand. The situation is, therefore, much better than ordinarily, though in some instances it is pointed out that buyers are rather difficult to persuade to take the supplies at the stiff prices asked. However, consumptive demand continues regardless of the haggling about prices and ultimately buyers pay the figure demanded.

The last arches are in the kilns at Hackensack. The quantity made this season surpasses anything heretofore done in this section, running up to over 150,000,000, it is reported, though makers themselves are a little chary about giving out the quantity they have manufactured. The season is over now, however, and the last shipments are going down the river preparatory to the closing of the navigation season. Prices range around \$6.26, and this seems to hold good for all New Jersey brick.

An innovation has been introduced in the work of the Ceramic Art Society of Newark. Besides the usual home work the members this season will be required to work out designs and problems on garden motives. This branch of the work is under the direction of Miss Maude Mason, of New York, who has been in charge of design work at the Chau-

tauqua Summer School. This society has done some notable work in ceramics, and the addition of this division promises to make a still better development of the work undertaken.

A. L. B.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

THE MANUFACTURE of brick on the Hudson river and all sections tributary to this city has closed for the season. A few yards here and there may be running, closing up the final burnings, but so far as making brick is concerned, the season's work is done. The total output is uncertain as yet, but it was probably the largest for a number of years. Over 400,000,000 are left on hand, which indicates something of what the output has been. In some instances yards began operations with a full force, but eventually curtailed production to keep it more nearly within the limits of demand. And now at the close it is considered that the remainder of the manufacture this season will sell reasonably well.

The quality of this season's output is better than it has been for a number of years, largely because of the long dry season. Almost no rain fell after July, consequently there was no washing on the drying yards and the brick came out in excellent shape. This will, perhaps, have its influence in helping the sale when the time comes. Most holders have made this a point of considerable importance during the past month or more, pointing out in numerous instances that the better quality of the brick offered warranted a better price. Perhaps buyers have not quite agreed with that, but in the main prices have been well maintained and cutting has been less than for a considerable time before.

The Hudson river output has ranged from \$5.25 to \$6.26 at the dock during the past month, and about seventy loads a week have come down. Not each week has sent that number, but the average has been about that. Some of the time they have been cleaned up entirely. Others have seen a number left at the dock for the following week. As a whole, however, the sale has been reasonably active and prices have ranged around those named. Buyers have taken what they have wanted from day to day. Not much has been bought for laying aside for future distribution.

During the week in which this was written cold weather descended upon this region and building operations were halted in consequence. The result was a quieter market, though prices were maintained in about the same ratio. Conditions are favorable. Building permits run heavy and the outlook for business next season is promising. The rumbles of the discontent of some of the labor organizations are heard now and then, but in the main the situation remains substantially as it has been heretofore, with the possibility for good business next season well developed.

Looking back over the entire season, one of the best informed among the New York brick men declared that manufacturers could not reasonably complain. "Perhaps they haven't always obtained the prices they thought they ought to have," he said, "but in the main prices have been profitable and movement has been sufficiently active to maintain them at full range of values. We are not finding fault with this season. What will occur next it is impossible to predict, but I am of the opinion that we shall see business even better."

A large building firm was asked regarding the outlook for constructive work the coming season and declared that it is good. "A good many contracts will be prepared during the winter for giving out next spring. We have had a number of inquiries regarding possible estimates upon the probability of unusual development next season. And from what capitalists and others have said about the probable development of the future we are confident that next season will be better than the one now closing. We are preparing for it upon that basis and are certain that brick men will find quite as good trade as they had this year—possibly better. We hope so, at any rate, since anything that benefits them benefits all interested in the business alike."

These quotations indicate the feeling in different branches of the trade at the close. The sentiment expressed seems to augur well for the trade next season.

BURTON.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

The Clay-Worker Appreciated in Iowa.

Editor THE CLAY-WORKER:

Please find enclosed remittance for \$4.00 for The Clay-Worker for two years. Your bill for \$2.00 came a day or two since. Presume you will not object to my paying an additional year's subscription. I appreciate The Clay-Worker very much indeed; it is a source of much pleasure.

With kind regards, I am, very respectfully,

Cresco, Iowa.

C. A. MARSHALL.

A Brickmaker Who Is Never Idle.

Editor THE CLAY-WORKER:

Please find enclosed a check drawn to your order for \$2.00, being in payment for one year's subscription to THE CLAY-WORKER. In regards to business, I am always busy; never idle; cannot make enough brick, but have to buy some. I am serving the following jobs now: Two hundred houses at 23d and Indiana avenue, 57 at 24th and Allegheny, moving picture place at 1227 North 10th street, stable at 4028 Ridge avenue, stable at Cheltenham and Germantown avenue, sewer at Carlisle and Montgomery avenue, and a few other jobs of from 1 to 5 houses here and there, and will start in a few days to send about 600,000 for an apartment house at Queen Lane Station, Germantown.

I have all the brick sold that I can make until next April, in fact, I always have smoke flying.

Philadelphia, Pa.

Yours truly,

JOHN A. GOODWIN.

Failure of Cement Drain Tile.

Editor THE CLAY-WORKER:

In the interests of clay tile you might be inclined to use the enclosed clipping from the Rockwell City (Iowa) Advocate. The facts in reference to the failure of the cement tile are as stated.

Yours truly,

B. E. STONEBRAKER.

CEMENT TILE ON COUNTY DRAIN SOUTH OF AUBURN BREAKS DOWN.

The Board of Supervisors of Sac county are having trouble in connection with the construction of the large county drain No. 29, two miles south of Auburn. The large thirty-six-inch cement tile made by the Sac City Cement Tile Company, of Sac City, will not sustain the earth load. There were 980 feet of these tile placed in the ditch and upon examination recently it was found that all of them had broken. The Board of Supervisors and the cement tile company have had experts there from Ames Agricultural College. The fault seems to be in the thickness of the wall of the tile or in the manner of manufacture. Some claim that the proper proportions of cement and sand were not used, and others that each cement mixture is an experiment and that good and enduring cement tile can seldom if ever be made. At all events, the 980 feet of tile laid have broken in and the 4,000 feet of the same size on the line of the drain will not be allowed to be placed. The taxpayers are up in arms and are demanding that the board give them value received for the money they are paying for the improvement. There are over \$25,000 worth of tile in the drain and the total cost will exceed \$65,000. The board has now advertised to let the contract for glazed vitrified

clay tile. They seem to be acting in good faith in the interest of the taxpayers in the district. It is an unfortunate affair indeed and it is to be hoped that the matter will soon be adjusted to the satisfaction of all parties concerned.—Rockwell Advocate.

Wants Clay-Worker for Superintendent.

Editor THE CLAY-WORKER:

Enclosed check of \$4.00, for which kindly send from now on two copies of your CLAY-WORKER to our address regularly. The last subscription has pleased the writer so well that he thinks it of interest to have also a copy for the superintendent at the factory, so that such matters that are of mutual interest can be talked over in a pleasant manner.

Wishing you still further success, we are, yours truly,

DAVENPORT BRICK AND TILE COMPANY.

Davenport, Iowa.

A New Town and a New Brick Plant.

Editor THE CLAY-WORKER:

Dear Sirs—I expect to locate a modern brick plant at Southmont, N. C. in the early spring to manufacture not only ordinary building brick, but also repressed and ornamental brick, drain tile, etc. Southmont is a new town opening up on the New Southbound Railroad. We haven't even got a postoffice yet. The government has ordered a postoffice established as soon as the railroad begins running passenger trains, which will be about January 1 next. The town has started off with a hustle, lots are being laid out, streets graded, a large hotel is in course of construction and numerous dwellings. This is in the hardwood region and bids fair to be quite a furniture manufacturing center. I will examine THE CLAY-WORKER and most likely send you my subscription. Messrs. J. C. Steele & Sons recommend it very highly. I will be in the market for brick machinery, wheelbarrows, etc.

Yours truly,

R. F. D. No. 2, Linwood, N. C.

A. C. GORLEY.

A Good Word for the Bureau of Standards.

Editor THE CLAY-WORKER:

Your comments upon building material tests by the Bureau of Standards in the October issue savor just a wee bit of regret that the work was not continued under the Geological Survey. It would seem to me that for many reasons you must appreciate the clay industry ought to feel particularly gratified that the Geological Survey or the Bureau of Mines has nothing further to do with such tests. You mistake when you state that the Bureau of Standards "was established primarily for the precise measurement of physical constants." I happen to know that it was established primarily to enable the government to standardize all weights, measures and methods that it was desirable to have uniform and standard in the United States. To arrive at certain standards it was expected that much experimenting and testing would have to be done. Building materials were thought of and a comprehensive scheme was laid out, even ten years ago, for standardizing clay, steel and all such structural materials, though the bureau at that time was only equipped to standardize certain weights and measures that it was most essential to have done at once. The bureau's plans are large and comprehensive, but can only be consummated gradually as Congress is made to see the importance of the work contemplated. It is the proper bureau for that sort of thing, and it only aims at that sort of thing—the standardizing and testing of everything that should be standardized after being properly tested.

There was no more reason for having that work done by the geological service than there is in having a carpenter lay up brickwork. That bureau should care for matters geologic. Insofar as the qualities of clay are concerned, for instance, and its mining and all that sort of thing, well and good; but its

processes of manufacture, the products of the mechanic arts, the mixture of concrete, all those details, manufacturing matters, lie in the path of other bureaus rather than the geological. The Department of Commerce and Labor is the proper authority to deal with them, and it is doing so now. It was a mistake to ever have the Geological Survey even begin that sort of work. There is a species of rapacity in some of the departments that makes them seek to get everything possible under their control. Of course it gives the successful political department that much more authority, greater appropriation, more employes, more importance, and consequent influence. Take, for instance, the War Department, too. There is a certain clique that is after everything governmental for that department. Already insular affairs are managed there; its engineers have charge of waterways and the most peaceful structural undertakings; you find army engineers here, there and everywhere that they really should not be; there is even some talk of putting them in charge of the Reclamation Service. Silly in the extreme. If we have to have war affairs and an army and all those frills of barbarous times, then let the soldiers play with the scrappy branches of science, but we have no use for them in the arts of peace.

I think you will find that the testing of building materials has been properly and well assigned in being given to the National Bureau of Standards.

F. W. FITZPATRICK.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



HERE HAS been a jump in the rate of building activity in Chicago during the last month which may result in the setting of a new record for the big city by the lake if the pace can be sustained during this month and next.

Everything is moving briskly now, and the outlook is bright not only for the final months of 1910, but for 1911 as well, and builders and material manufacturers and dealers are more than contented and likewise more than busy. It was estimated by a veteran brick man in the city the other day that practically every plant in this part of the country had sold its entire output for the year thus far, with no prospect of any let-up between now and January 1.

All through the earlier part of this year building activities kept up a clip only a trifle below that of last year (which was a record-breaker), letting up a little in mid-summer, and getting astride again during September. With October, however, came the first of the big spurt, and now it is recognized that one of the most striking building "booms" in the history of the city is "on." During the month of October the building figures went up an even 33 per cent. over the figures for October, 1909, while New York, Chicago's nearest competitor in building among the great cities, showed an increase of only 8 per cent. over the same month of last year; Brooklyn showed a slump of over 47 per cent. for the same period, and Philadelphia a drop of 9 per cent. In other words, so far as the records of the building department show, last month was the most wonderful of all Chicago's constructive history. Permits were taken out for 1,140 buildings, and the estimated cost involved was \$10,077,204, which is very nearly the high record of the Borough of Manhattan and Bronx for any month.

Thus far the first ten months show an increase in the number of building permits issued, and although there is a decrease in the estimated cost recorded, it is only about \$650,000.

Tabulated, the figures for the first ten months of 1909 and 1910 stand:

	1909.	1910.
Number buildings	9,860	9,962
Estimated cost	\$77,008,980	\$76,362,100

While the building is pretty uniform for all parts of the city, the showy part of it, of course, is in the downtown territory, and not a month goes by now, save by exception, without some new big building for this part of the city being an-

nounced. The latest addition to be made to the skyscrapers is the new building to go up on the site of the Trude and Leiter properties in Clark street, between Washington and Randolph streets. This is to be put up by James O. Heyworth productions and are seeking a market for these along with and associates. It will be a business block and theater building, the theater, it is understood, to be called The Heyworth. This structure will cost over \$1,000,000, and will rise to a height of twenty stories.

This bodes well for the development of the north section of the so-called "Loop" district, and the positive announcement of the new Heyworth enterprise is closely followed by rumors that the Eitels are planning to construct a thoroughly modern, first-class building at the northwest corner of LaSalle and Randolph streets, on the site of the present Metropolitan building.

It is the age of brick in Chicago, indeed, and each new building that arises demonstrates the truth of this statement. All of the modern Michigan avenue "beauties" are monuments to the supremacy of brick as the agent of artistic construction. The Blackstone Hotel, the new L. J. McCormick building, the Pioneer Railway Exchange, the new Gas building, with lesser lights sandwiched between, tell the story to "Benzine Way" and the Lake Front, blazoning forth as it were a white enamel challenge to the soot and smoke of the Illinois Central. In smaller structures reaching southward Automobile Row is thus immaculately housed for the most part, and contracts have just been let for a new automobile building on this order to be erected by LaVerne W. Noyes as far south as Twentieth street, and this structure (in white enamel terra cotta) is intended to be especially beautiful.

Resuming our poll of the more imposing brick structures, we are compelled to note—taking only the newer ones—the Steger building and the Kesner building in the east part of the "Loop" district, and the LaSalle Hotel and the new Sherman House in the northwestern corner. The tall and graceful structure soon to be the home of the Harris Trust Company in Monroe street, between LaSalle and Clark, is already growing beautiful in a mantle of glowing red brick, rapidly being molded about the gaunt framework. This recount barely hits the "high places," omitting altogether the many less stupendous but none the less artistic mercantile structures.

The same is true all over the city. Apartment houses—and there is a wonderful gain artistically in this type of buildings nowadays—and individual dwellings all carry out the inevitable idea of modern architects and builders. One of the largest of the apartment buildings recently planned is to be called The Tuilleries when completed on the west side of Lake avenue, between Forty-sixth and Forty-seventh streets. It will contain forty-eight apartments, being built to a height of three stories on the court plan and with eight entrances. It will have private balconies, be constructed of brick with yellow face brick and terra cotta trimming.

Of the proposed downtown structures none seems to be attracting more interest just now than the new fifteen-story building which it is announced Mandel Brothers will put up on their present site. Terra cotta is to figure extensively in the ornamental exterior.

D. V. Purington has gone into winter quarters again, departing for his beautiful home at Ocean Springs, Miss., about the first of the month.

SCRIP.

Some years ago the National Carbon Company of Cleveland, Ohio, was induced to put The Stevenson Company's chaser mill to a test in their Cleveland works and finally installed two of them, securing such great results from them that they have now placed an order for another seven-foot mill for their Clarksburg, W. Va., works, requiring early shipment, and two eight-footers for the new works they are constructing at Niagara Falls, N. Y., delivery within six months.

RECENT PATENTS.

Material for this department is compiled expressly for THE CLAY-WORKER by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F street, Washington, D. C., and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same, should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cents.

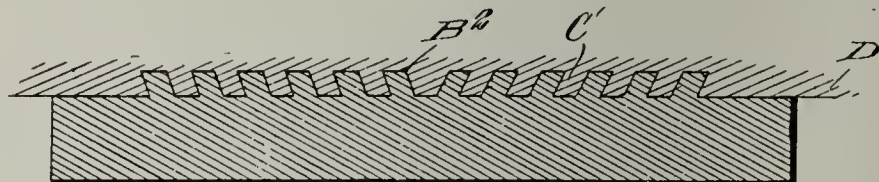
Wall Tiles: Frank X. Wille, of Spokane, Wash. 973,243. Patented October 18, 1910.—This invention relates to improved means for securing a wall tile in position. As shown in the drawing, which represents a cross-sectional view of the improved tile, ribs are provided on the back of the tile adapted to be imbedded in the plastic material of the wall, such ribs being divided into two groups, said groups being oppositely inclined.

Machine for Handling Bricks: Raymond C. Penfield, of New York, N. Y. 974,292. Patented November 1, 1910.—This is a novel device for lifting stacks of bricks or similar articles by means of any suitable hoisting engine. The illustration

by hand. Our illustration shows a side view of the mechanism parts being in section and the outline of any well-known form of press being shown in dotted lines. The complete drawings of this patent comprise six figures, and space will not permit a detailed description. Any person interested should obtain a copy of the patent itself for a full understanding of the machine.

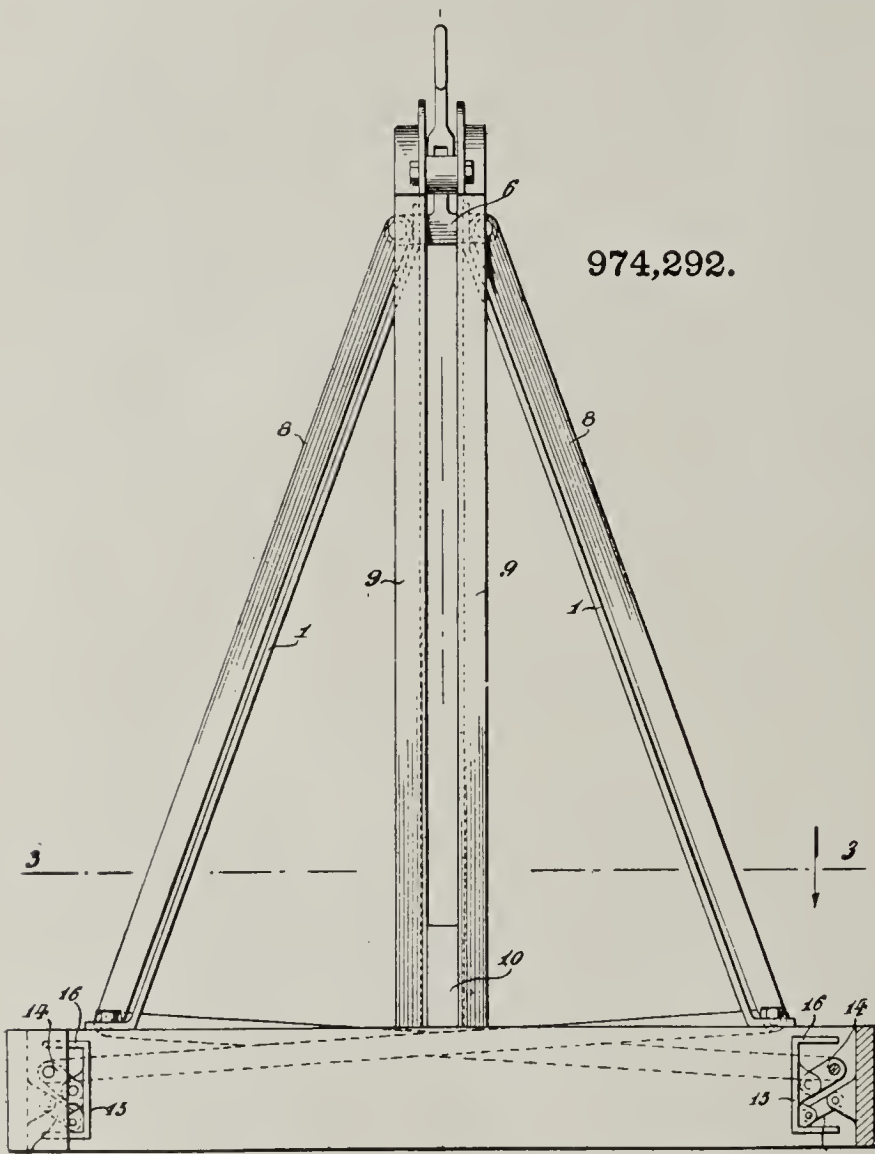
Apparatus for Burning Ceramic Materials: Henry L. Doherty, of New York, N. Y. 974,646. Patented November 1, 1910.—This invention relates to apparatus for burning bricks and the like and has for its object to provide an improved ar-

973,243.



Cross Sectional View of Improved Tile.

974,292.

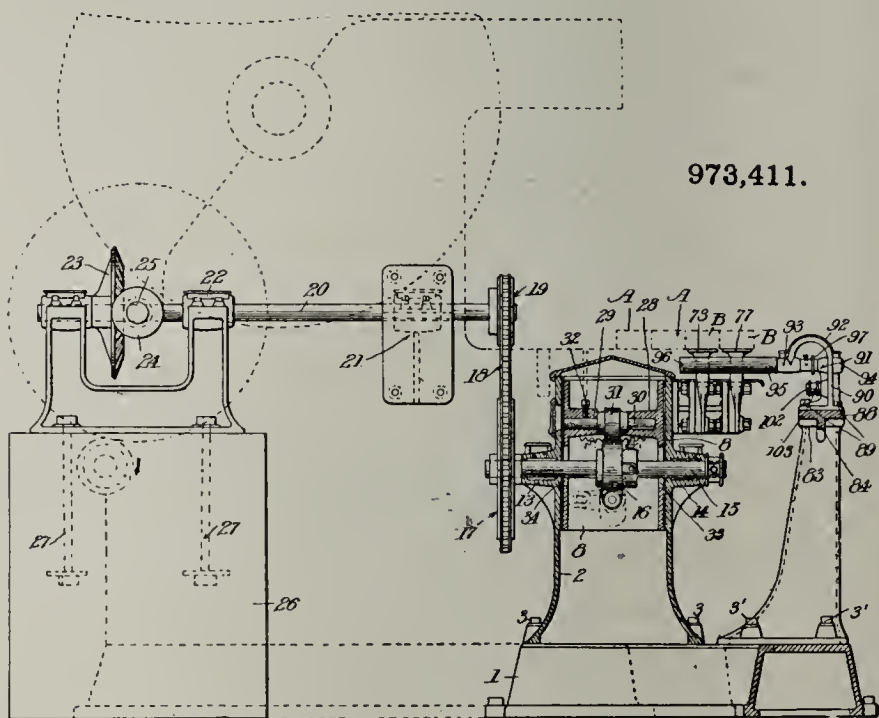


Machine for Handling Brick.

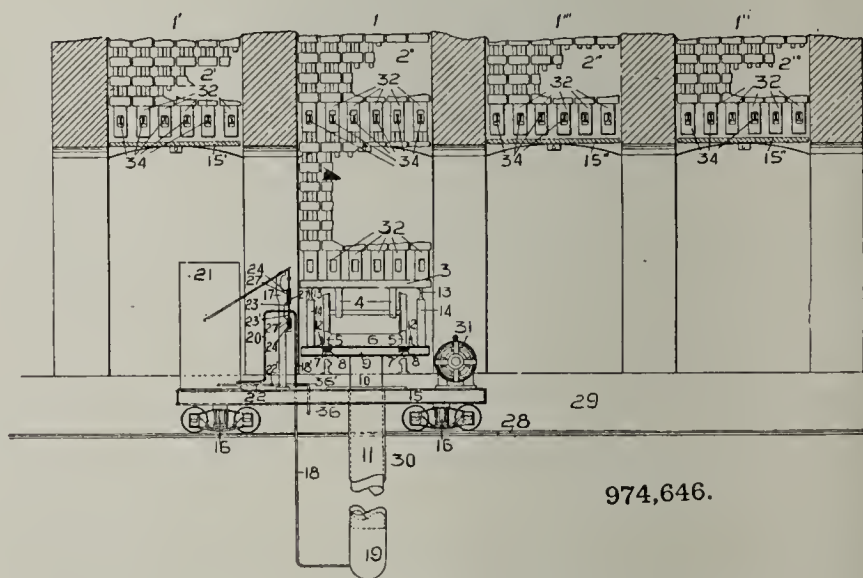
shows a side elevation of the device, partly in section. It consists of a frame adapted to embrace the pile of brick and having clamping plates (15) arranged therein. These clamping plates are connected to rock shafts (14), to which are secured long arms, to the ends of which are pivoted the lifting links (8). It is evident that an upward pull on these links will rock the shafts (14) and cause the plates (15) to grip the lower layer of bricks between them.

Off-Bearing Attachment for Brick Presses: William R. Cunningham, of Bucyrus, Ohio, Assignor to the American Clay Machinery Company, of Bucyrus, Ohio, a Corporation. 973,411. Patented October 18, 1910.—This invention relates to mechanism for removing brick automatically from a dry press or other brick machine and depositing the same onto a conveyor, and its object is to save the expense of men to do this work

973,411.



Off Bearing Attachment for Brick Presses.



974,646.

New Kiln for Burning Ceramic Materials.

range which will permit of the carrying on of the burning operation in a continuous manner, and at the same time of the recuperating of both the heat of the burned bricks and that of the combustion gases discharging from the kiln. Briefly, the subject of this patent comprises a battery of kilns having longitudinal tunnel running under the battery, and a movable platform supported on trucks running on rails laid in said tunnel, the said platform supporting a hydraulic ram, whose plunger bears a vertically movable platform having rails laid on its upper surface, upon which the truck which is to receive the charge of finished product can be run. The illustration

shows a vertical longitudinal section through the battery of kilns. The complete drawings comprise nine figures. For a full understanding of the device those interested are referred to the patent itself.

GALA DAY AT SAPULPA.

THE OPENING of the Sapulpa brick plant, at Sapulpa, Okla., was made a gala day and a party of invited guests gathered from far and near to see that the start of the plant was an auspicious one. Certainly no plant in the West has started under more joyous or favorable circumstances and the guests united in best wishes for continued success. The day's pleasantries ended with a substantial banquet which was partaken of with a zest stimulated by the following unique menu:

Soup a la Tailings, Gause's Henryetta Noodles
Pug Mill Chowchow
Green Glazed Pickles (One of the fifty-seven variety.)
Brick Salmon
Powell's Special Tenderloin, with Gear Grease Sauce
Young Veal, American Dry Pan Dressing

the American Clay Machinery Company, Bucyrus, Ohio, is as follows:

One No. 65 Auger brick machine.
One No. 20 Automatic brick cutter.
One No. 29 pug mill.
Two nine-foot dry pans.
Two elevators.
Two No. 87 piano wire screens.
Two Eagle represses.
One No. 1 winding drum.
Three hundred No. 82 dry cars.
One No. 5 single transfer car.
One No. 6 double transfer car.
Two Style B six-foot turntables.
Two disc fans.
Two No. 171 steel dump clay cars.
One gas fired dryer and equipment.

The gas fired dryer is a feature of this plant and it has been giving the same degree of success as have these dryers on other plants.

A DIRECTORY OF BRICKMAKERS.

The nineteenth annual edition of Hendricks' Directory for Buyers and Sellers has just been issued. It is by far the most complete edition of this work they have ever published and



Guests at Plant of Sapulpa Brick Company, Opening Day.

Dr. Paul's Special Carved Tongue Kiln Dried Ham
Laminated Orange Fritters with Elevator Sauce
Kentner's Installation Salad
Waste Heat Potatoes Steam Lubricated Beans
Screen Succotash Side Cut Stewed Corn
Wood Pulley Split Peas
Wire Cut Bread
Taylor's Leviathan Pie Wiley's Exhaust Fan Pudding
Repressed Ice Cream Stiff Mud Cake
Brick Cheese Gas Burnt Crackers
Water Smoked Tea Flashed Coffee
Up and Down Draft Cigars
Music by the Piano Wire Screen Orchestra

While the wishes of the guests were gratifying and stimulating, the real success of the enterprise devolves upon management and machinery. In both these particulars the Sapulpa plant is amply fortunate. The management is backed by energy, experience and ability. These will no doubt make the plant a continued success. The machinery and equipment is backed by the half-century of experience of the "Built Right, Run Right" line, which is conceded to produce results where well-made machinery can turn the trick. The equipment of the Sapulpa plant, all of which was furnished by

contains a fairly accurate list of those engaged in the brick-making business and other kindred lines. The book contains over 350,000 names and addresses, classified under 35,481 classifications, representing nearly every machine, material, apparatus or specialty required in architectural, engineering, mechanical, electrical, manufacturing, railroad, mine, quarrying and other industries, embracing everything for building and construction work of all sorts. To those wishing to circularize any of the building trades this work is well nigh invaluable. It is substantially bound in cloth covers and will be sent, carriage prepaid, to any point in the United States for \$10.00. Send orders to T. A. Randall & Co., Indianapolis, Indiana.

PLANNING TO ENTERTAIN N. B. M. A. DELEGATES.

Frank L. Hopley, advertising manager of the American Clay Machinery Company, Bucyrus, Ohio, dropped into THE CLAY-WORKER sanctum recently en route from Louisville, Ky., where he had journeyed to arrange for headquarters for his company convention week. He was very favorably impressed with the excellent facilities offered by the Seelbach Hotel, where he and his associates will entertain N. B. M. A. delegates with stereopticon views and a moving picture show.



OFFICIAL ANNOUNCEMENT.

Twenty-Fifth Annual Convention of the National Brick Manufacturers' Association, to Be Held at Louisville, Ky., February 6 to 11, 1911.

BECAUSE OF ITS central location and consequently its accessibility to a large majority of our members, Louisville has been chosen for the twenty-fifth annual convention of the National Brick Manufacturers' Association, to be held February 6 to 11, 1911.

However, it is not location alone that has led to the selection of the Kentucky metropolis. A combination of advantages has influenced this choice, chief of which is the Seelbach Hotel, which offers unexcelled facilities for our meetings, including convention hall for the N. B. M. A. and adequate assembly halls for each and all of the affiliated organizations. It affords every desirable convenience and facility for such a gathering. Its banquet hall has few equals and its rathskellar is a dream in Rookwood faience of which any clay-worker may well be proud.

Many of our members have expressed a desire to go South this winter, and Louisville being the gateway to the South, will enable them to do so after the convention and enjoy the best through service, assuring every convenience and comfort. If a sufficient number desire to make a trip to New Orleans, Jacksonville or other Southern points, a special party will be arranged for. Those interested are requested to communicate with the secretary in regard to same.

Doubtless all who attend the convention will want to visit the famous Mammoth Cave, the marvelous natural subterranean cavern, which is justly considered one of the world's wonders, so a side trip to same will be arranged for. The cave is situated some ninety miles south of Louisville on the L. & N. railroad, and a special train will be provided, insuring a comfortable as well as an interesting and instructive outing. This side trip alone will well repay a trip across the continent.

Ample facilities will be provided for all the affiliated bodies and for the display of specimen brick and other clay ware, machinery and appliances. All in all, the choice of Louisville will prove a very happy one, and it is confidently predicted that a record-breaking crowd will assemble there at the appointed time. The members are invited to suggest topics for discussion and subjects for formal papers touching on any and every phase of the business in which they are interested. Those desiring to join the association or wishing information relative to the requisites of membership are requested to address the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

WILL P. BLAIR, President.

THEO. A. RANDALL, Secretary.

LOUISVILLE, THE HEART OF AMERICA.

The heart of America is certainly a most attractive place. According to the Convention and Publicity League of that city, Louisville is that place. "Take it all in all—for men and women, for happy homes and loving hearts, for business and for hospitality—the best place this side of Heaven the good

Lord ever made is Louisville." Could more be said? An affirmative answer, several of them, in fact, is contained in a neat little brochure telling of the advantages of Louisville as a convention city, copy of which can be had for the asking from R. W. Brown, secretary Louisville Convention and Publicity League, Louisville.

ANNUAL CONVENTION OF THE AMERICAN ROAD BUILDERS' ASSOCIATION.

THE SEVENTH annual convention of the American Road Builders' Association will be held at the German House, East Michigan and New Jersey streets, Indianapolis, Ind., on December 6, 7, 8 and 9. In connection therewith will be held a congress of road builders and a "good roads show."

The sessions of the convention and congress will be devoted to the presentation of a large number of technical papers on the subjects of road and pavement construction and maintenance by leading highway officials, discussions of the papers and of matters pertaining to the work of highway improvement, and to addresses by prominent men interested in and identified with the various phases of the work. The program is now being prepared and will be announced later. It will comprise papers and addresses covering every phase of road and street improvement and treating the subject from the viewpoint of each of the many classes to which it is of moment.

The membership of the American Road Builders' Association includes the foremost road-making and street-paving authorities of the United States and Canada, men occupying the chief administrative and engineering positions in the highway departments of states, counties, cities and towns. The experience of these men embraces work with all the materials and methods used in the construction of country roads and city streets and the building of highways under all the varying conditions encountered throughout the country. The opportunities afforded by the conventions of the association to learn from these men, both through the papers prepared and presented by them and by personal meeting with them renders the annual convention of the American Road Builders' Association the chief event of the year in road building circles.

Following the custom inaugurated last year at the sixth annual convention at Columbus, Ohio, the exhibition of materials and machinery will form an important feature of the convention. Ample exhibition space has been obtained in the German House and the grounds connected with it, thus bringing the meetings and the exhibits together and facilitating attendance upon both without the loss of time. The exhibits will include the various materials and the most improved machinery and appliances for road making and street paving. The greater number of exhibits will be shown in the German House, while the larger and heavier machinery will be displayed in the adjacent grounds.

The meetings and exhibits will be open to the public, and a general invitation is extended to every one interested in any branch of highway work. The headquarters of the association are at 150 Nassau street, New York City.

PUBLICITY DEPARTMENT,

AMERICAN ROAD BUILDERS' ASSOCIATION.

150 Nassau Street, New York City.

NEW IDEA IN ROAD BUILDING.

Among some of the new ideas of the world proposed for good roads is one which involves making a sort of three-phased roadway. Laying off the roadway in three widths, one for light vehicles and speedway driving. One for heavy traffic and wagons, and one for pedestrians. It is argued that this will give a chance to pave each part of the roadway with material best suited for the traffic it is desired to carry. There is one way they could simplify this, and that is by making the whole thing paved with brick. Then it would carry nicely any and all kinds of traffic.

OBITUARY.

John J. W. Billingsley, the "Father of Tile Drainage." One of the Founders of The Clay-Worker, and a Charter Member of the N. B. M. A., Dies at the Age of Seventy-Eight Years.

AFTER AN ILLNESS of eight weeks John J. W. Billingsley died at his country home near Howland Station, a suburb of Indianapolis, Tuesday morning, October 25. Mr. Billingsley was born near Bowling Green, Ky., September 18, 1832. Notwithstanding his advanced years, he had been active up to the time of his fatal illness. His life had been an exceptionally busy and useful one. His boyhood was spent on his father's farm. He was a graduate of Franklin (Ind.) College, and when twenty years of age began life for himself as a farmer, settling in Effingham county, Illinois. In 1854 he had the honor of presiding over the first Republican convention held in southern Illinois.

In 1870 he moved to Indianapolis, where he has since resided. His most important life work was that devoted to advanced agriculture and farm drainage. In 1879 he established a monthly magazine entitled The Drainage and Farm Journal, and was instrumental in organizing state associations for the advancement of tile drainage in Indiana, Ohio, Michigan, Illinois and Iowa, and is known throughout these States among the pioneer tile manufacturers as the "father of tile drainage." In 1884 he instigated the establishment of THE CLAY-WORKER, of which he was the editor-in-chief for a number of years. During recent years he has edited the department of Land Drainage in this journal. A goodly portion of his time during the past decade has been devoted to lectures before farmers' institutes. His practical knowledge on all subjects pertaining to farm life gave great weight to his opinions. Mr. Billingsley's chief personal charm was due to natural modesty and kindness. He was a charter member of the National Brick Manufacturers' Association. He was a Mason, and had been a deacon in the College Avenue Baptist church at Indianapolis for many years. His widow and seven children survive him.

A Memory of Invaluable Assistance.

Editor THE CLAY-WORKER:

Yours of October 29th at hand. I note with regret the death of Mr. Billingsley. He was a lovable man, and I shall not forget his kindly attitude toward me and my ambitions when I was trying to organize an association at the university and was trying to use our drain tile association in Ohio as a means of getting the matter to the front. Mr. Billingsley's assistance was invaluable. Kindly give my regards to Mrs. Randall and extend my sincere sympathy to her in her loss.

With kindest regards, I am
Yours very truly,
EDWARD ORTON.
Ohio State University. Columbus, Ohio.

A Good Name the Most Valuable Heritage.

MY DEAR THEODORE:

The news of Father Billingsley's death surprised me or would have done so if I had not known from your previous letters that he was ailing. If he had reached a point in life where he had practically ceased to be useful to himself or others I think he must have been glad to go. I certainly hope the good Lord will take me rather than leave me to be a burden to those who love me. There is certainly nothing in Mr. Billingsley's life that his children need be ashamed of, and after all a good name is the one thing we should strive to leave as a heritage. I have always felt that he was one of the real good men whose acquaintance I have made through the N. B. M. A. My sympathy goes to you all, but

with it goes the feeling that you can all be certain that whatever there is in the future in the way of reward will surely be his.

Chicago, Ill.

Yours sincerely,
D. V. PURINGTON.

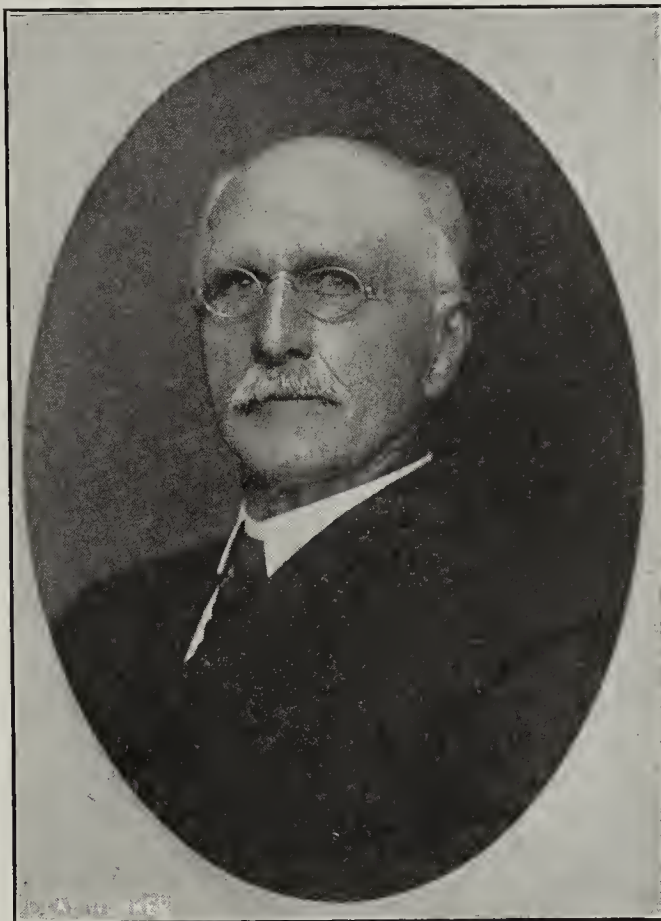
Expressions from a Young Co-Worker.

Editor THE CLAY-WORKER:

I was greatly shocked and deeply grieved to learn of the death of my warm personal friend, J. J. W. Billingsley. He recommended me on the "Institute Force." I called him my father in the institute work, and often I have gone to him as to a father for counsel and advice, which he was always willing and abundantly able to give. My life has been enriched by associating with him, and my tears are mingled with yours.

Malott Park, Ind.

Very respectfully,
E. C. MARTINDALE.



The Late Hon. J. J. W. Billingsley.

A TRIBUTE.

Wearied with his task, the long day ended,
Homeward the toiler wends his way, attended
By the sweet consciousness of duties done
The strenuous battle fought the victory won.

At home! At rest! And the Master's smile
The pure reward of service past the while
Some new and larger service waits the hands
And heart now skilled for Heaven's demands.

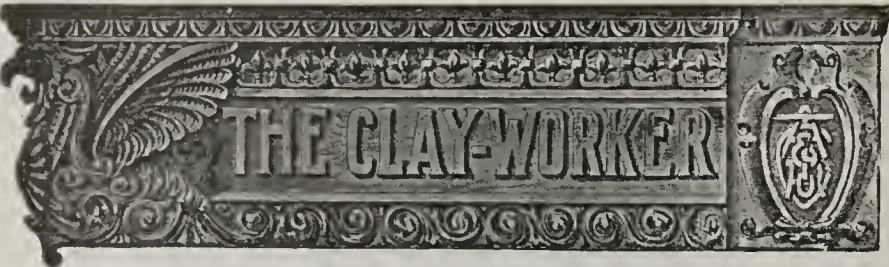
Heaven is not idleness, yet service there
Is not a task to tax the powers severe
As that on earth, but rather it is this—
The foreordained condition of the perfect bliss.

And so his "dying" was not death but LIFE
More real, intense, and full, far past the strife
And failure met with here—a life so blest
That there all tasks are sweet, all labor rest.

His hands are folded, silent now his voice,
And what we one time said was he we have no choice,
But tenderly to lay beneath the trees
'Mid the soft, sad requiems of the breeze.

But let us not mistake, nor by the sense
Limit the spirit. Not here is *he* but hence
Far hence with God. Upward we look, not down;
His the 'life indeed'; his the unfading crown.

R. E. NEIGHBOR.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
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Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIV NOVEMBER, 1910. No. 5.

CURRENT COMMENT.

Snowballing is cleaner sport than mud-slinging, anyhow, to say nothing of the joy-riding in sleighs.

* * *

Somebody started a weak rumor that turkeys are going to be cheap this year, but somehow we doubt it, for this is not a year of cheapness.

* * *

There may be a few bruised spots on the big stick and a few wrinkles in "my policies," but they are both good for lots of hard service yet, and the country will be better off in being served by them:

* * *

It seems to be the opinion of everybody interested that the way to get more deep waterways is to stop talking now and dig. First, it is up to Uncle Sam to dig down deep into his treasure box to start the ball rolling.

* * *

The thing that interferes most with learning and progress is the fact that many men get the idea rooted in their minds that they are already wise, and until this idea is uprooted it is very hard for them to learn more or make much progress.

* * *

Farmers' organizations are said to be cutting out some of the middle men to save expenses between consumer and producer of farm products. They may have cut out a few middle men, but if they have saved any expense so far we have not seen it.

* * *

The late head of our Forestry Department, Mr. Gifford Pinchot, has recently issued a book on "Our Natural Resources." If there is any man in the country competent to write authoritatively on this subject it should be Mr. Pinchot, and it can be taken for granted that the book contains some

reliable and wholesome facts and figures. Also some logical deductions.

* * *

Now that the political pot is done boiling let us forget politics for a while and all work together for a booming big business next spring.

* * *

It has been a pretty good season in building operations, probably short of what some expected, and there were many talked-of buildings that were not erected, but still it has done very well, and the clayworking industry should be in a prosperous condition when it goes into winter quarters this year.

* * *

There are three goal points in the brick business. One is to shorten the time as much as possible, one is to save as much fuel as possible, and the other is to have as much good brick and as little waste as possible. Often you can reach one goal at the expense of the other, and it is quite a lively game to play all three of them with the best results.

* * *

When you go into winter quarters with your plant make it a point to carefully clean up all of the machines before they go through the winter instead of after, because clay moisture and other accumulations around machinery do harm, and it is better to clean them up and oil them carefully now, even if they must be gone over again about starting time in spring.

THANKSGIVING.

In these days we are a little too much inclined to make Thanksgiving a full brother to Christmas instead of just a distant cousin. We are too much given to celebration and probably not enough to devoting the day to what it was set apart for—that of giving thanks for our sustenance during the year. Some years, when some of us are unusually fortunate, we may feel a sort of elated spirit of thankfulness, while other years, when we have been less fortunate, we may feel that there is not much to be thankful for. The fact of the matter is, Thanksgiving as it was originally conceived really consisted of giving thanks that we are alive and have gathered enough to subsist on. That is what the old Pilgrim fathers were thankful for.

The poorest of us today, the most unfortunate, have more than the Pilgrim fathers had when they inaugurated Thanksgiving. So let us not conceive of it as an occasion to give thanks when the year has been unusually good and prosperous or because of particular prosperity, but it is a time when we should recognize that everything we have, our own life and the material with which to keep it subsisting is given us by a power greater than us. Therefore, there is never a year so poor but what we should give thanks, and those that are prosperous or have had a good year should be unusually thankful. There are plenty of the latter, too. In fact, this country as a nation has more cause to give sincere and heartfelt thanks than any country in the world, for no other has been dealt so well with. Then let us try and make the observance of the day take on, along with the festivities, a goodly share of real thanks.

AN EARLY CONCRETE FAILURE.

Every once in a while history repeats itself, and reminds us of that old song about nothing being new. In this connection the Washington Star digs up an instance about concrete to show that neither concrete nor concrete failure is a new thing. The paper reprints an item from its issue of October 20, 1860, which tells of the collapse of the Experimental building in the propagating garden on Four and One-Half street, near Canal, Washington, in which several workmen were slightly injured. The material used in this case was concrete made of lime, sand and gravel and was intended for a

sort of office building or lodge. It was freshly built, when some rains came and weakened it, and it collapsed. This was fifty years ago, and it was a lime, sand and gravel combination. But the collapse in its nature was pretty much the same as some sand, lime and cement combinations of today.

CHANGE OF SENTIMENT REGARDING ROOFING MATERIALS.

Roofing is an old subject that the sentiment changes about from time to time and in these changes may be found opportunities for the development of burnt clay roofing material. A few years ago it was thought the days of the shingles were numbered, and people went in heavy for composition roofing, and now there is a swing of sentiment back toward shingles again or toward some other form of roofing that may be better. Clay tiling is about the only thing that will outlast shingles, and with the present change of sentiment is where the clay products people should find opportunities for enlarged trade.

CONCRETE NOT TRUE FIREPROOFING.

One of the points we have contended for right along is that clay products are the real and true fireproofing material and that other competitors, such as concrete, while they are not consumed by fire and will not burn of themselves, are so weakened by the effects of the hot fire that their usefulness is destroyed. In other words, there is no comparison of the relative merits when it comes to fireproofing a building and insulating the metal work by a surrounding of clay or of concrete. When a building is either of steel framing proper, surrounded by concrete, or if the building is of reinforced concrete, has a fire in it which generates any high degree of heat, the concrete is weakened and if it is depended upon to protect the steel frame building the frame itself is likely to be weakened and spoiled.

Notwithstanding these facts, the insurance people and boards of underwriters have generally been rather lenient about concrete and have practically admitted it on the same footing as clay products, or as a fireproofing material. From the tests of time they are learning better though, and now there is noticeable a different sentiment and a growing recognition of the weaknesses of concrete for this purpose.

On this point a report comes from out of the West of a building of reinforced concrete and brick in which a fire occurred. In estimating and adjusting the loss the estimate was based on the theory that the concrete floors and ceilings were not damaged seriously.

The owner did not take to this theory kindly, for it appeared to him that the concrete floors might be weakened, so he asked that they be subjected to the same test they were subjected to in the original construction. That is, be tested by putting a weight of 400 pounds per square foot on them, and if they deflected more than 3-16 of an inch they were to be condemned and removed.

Finally, it seems, a series of tests were made. The floor consisted of quite a number of panels, one or two of which had not been subjected to a severe heat, and the test proved that those which had been tried by fire were weak and deflected too much, whereas the original ones, which were not subjected to much heat, stood the test all right. The same sand was used for testing on each panel, and there were 250 pounds to the square foot instead of the original 400.

These tests and other information of similar nature gathered from fire records go to show the weaknesses of concrete as a fireproofing material. A weakness which seems impossible to overcome. It seems that the reinforcing steel used in it is expanded by a certain amount of heat, causing the concrete to weaken and thus become unsafe.

It will be observed that the tests in this case refer to reinforced concrete proper, but the same thing applies with equal force to steel frames protected with concrete as a fireproofing

material. They are likely to damage from heat in case a fire starts in the building. Therefore, it is not in a true sense a fireproofing material. The best architects are already taking note of this fact and are more strongly inclined than ever to specify clay products where fireproofing enters as a special factor in the building operation.

IMPORTATIONS OF CHINESE COAL AND CEMENT.

The Chinese may look sleepy, but evidently they are not slumbering every time their eyes are shut, and probably they have heard of that old saying about carrying coals to Newcastle. Anyway, we are informed that during the past summer a Chinese mining company made a sample shipment of coal, coke and cement to San Francisco, the total cargo being valued at \$34,863. And it is said that the significant part of this act is contained in the fact that a Chinese representative of the company followed it to America presumably with a view to developing a regular trade. Also, it is said that the Chinese are producing more coal than they need and are perfectly willing to swap it for American dollars. Also, it is said that they include fire brick and clay tiles in their surplus their coal on the west coast of the United States. So the brick men as well as the coal men may sit up and take a little notice.

ANOTHER RICHMOND IN THE FIELD.

There is another rival now offering to cross lances with clay products, but this time instead of being a rival to brick and structural work it is a rival to hollow clay blocks. The new rival is to take the form of plaster blocks. Made somewhat after the manner of the regulation hollow block clay stock for partition walls except that the new product is to be made of gypsum plaster composition, a sort of stucco or wood pulp plaster mixture.

It is admitted at the outset that the new offering costs slightly more than the clay product, but they seem to hope that by making special claims and doing a lot of good advertising it will be a product that will win its way. It will serve one purpose anyway. It will keep the clay block people from going to sleep or resting on their laurels. It will help keep them awake and stirring and pushing their product. If they do this and do it insistently and intelligently they need not fear any rival that may come into the field.

CONVENTION DATES.

The Iowa Brick and Tile Association will hold its annual convention at Boone, Iowa. Date not yet announced. Secretary C. B. Platt, Van Meter, Iowa, will mail programs when complete to those requesting same.

The Wisconsin Clayworkers' Association will meet in Milwaukee, Wis. Date not announced. The secretary, Prof. Samuel Weidman, Madison, Wis., will give particulars on request.

The Canadian Clay Products Manufacturers' Association will meet at Toronto, Ontario, Canada, December 14, 15 and 16, 1910. Secretary D. O. McKinnon, 408 McKinnon building, Toronto, writes that an exceptionally interesting program is in course of completion. The plan for the entertainment of visitors includes a banquet and trips to the local clayworking plants and the factory of the Berg Brick Machine Manufacturing Company. Those desiring complete program are requested to write the secretary for same.

The Illinois Clay Manufacturers' Association will hold its thirty-third annual convention at Chicago, January 17, 18 and 19, 1911. Headquarters will be at the Palmer House. The sessions will be held in the assembly room of the hotel, ad-

joining which will be an exhibition room for the display of clay ware, etc. The local entertainment committee will give a complimentary banquet to visitors and arrange sight-seeing parties. For further particulars, address George H. Hartwell, secretary, 303 Dearborn street, Chicago.

The American Ceramic Society will meet at Trenton, N. J., February 14, 15 and 16, 1911. Program will be published in a subsequent issue of THE CLAY-WORKER. As Trenton is one of the chief pottery centers of America, it is anticipated that there will be a large attendance of ceramists, and the meetings will be of unusual interest. For further details address Prof. Edward Orton, Jr., secretary, Columbus, Ohio.

The National Paving Brick Manufacturers' Association will hold its annual convention at Louisville, Ky., February 6, 7 and 8, 1911. The meetings will be held in the assembly room of the Seelbach Hotel. An interesting program is being prepared. Copy of same can be obtained by addressing Will P. Blair, secretary, Board of Trade building, Indianapolis.

The Building Brick Association of America will meet in annual convention at Louisville, Ky., February 7. and 8, 1911. The sessions will be held in the Red Room, Seelbach Hotel. For program, etc., address Parker B. Fiske, secretary, Flatiron building, New York City.

The National Clay Machinery Association will hold its annual meeting at Louisville, Ky., February 6 and 7, 1911. For program, etc., address W. N. Durbin, secretary, Anderson, Ind.

The National Brick Manufacturers' Association will hold its twenty-fifth annual convention at Louisville, Ky., February 6 to 11, 1911. The Seelbach Hotel will be headquarters. Official announcement will be found on another page of this issue. Those desiring information as to requisite of membership, etc., will please address Theo. A. Randall, secretary, Indianapolis, Ind. A side trip will probably be made to Mammoth Cave, one of the world's wonders.

The National Builders' Supply Association will meet in annual convention at Chicago, Ill., February 21 and 22, 1911. Congress Hotel Annex will be headquarters. Further particulars can be had from Secretary James W. Wardrop, 404 Frick building, Pittsburg, Pa.

Written for THE CLAY-WORKER.

THANKSGIVING.

For the Common Folks Made Out of Common Clay.

It takes all kinds of folks to make a nation full, you know;
And more kinds still to make the several sorts of races grow;
But Mother Nature keeps the average right from day to day,
A-making different kinds of folks from different kinds of clay.

Now, some she makes for ornament, just like a pretty vase
That sets upon the mantel in a high and careful place;
And some are only bric-a-brac that's always in the way,
A-taking some good woman's time to dust it every day.

Then, lots of folks are pretty toys, made to amuse the rest,
Made out of fine and costly clay, but playthings at their best.
Still others, with brave frontery, serve best as lacquered tile
That hides the real structure-strength, and takes the praise mean-while.

But most and best of all the folks are made of common clay—
The kind that's shaped for useful vessels, needed every day—
The sturdy, sticking, wearing clay; the gritty, lasting stuff;
Made into human bricks that stand long usage, hard and rough;

That hold the mantels where the vase and bric-a-brac have place;
That make a firm foundation where the polished tile shows face;
That build the halls of freedom, where we stay and play and pray.
God bless 'em! they're the common folks, made out of common clay.

Not made for ornaments. Oh, no! And this great world of ours
Would freeze and starve and go to waste, with all its vaunted powers,

If these plain folks should turn to ornaments for one whole day.

I thank God for the common folks, made out of common clay.

—MARGARET ANDREWS OLDHAM.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 567.]

FOR SALE, WANTED, ETC.

WANTED—Position as superintendent of a fire clay or silica brick plant. Can take entire charge, works, office and selling. References. Address

BOX 10, J. A. L.,
10 1 cm Care Clay-Worker.

FOR SALE.

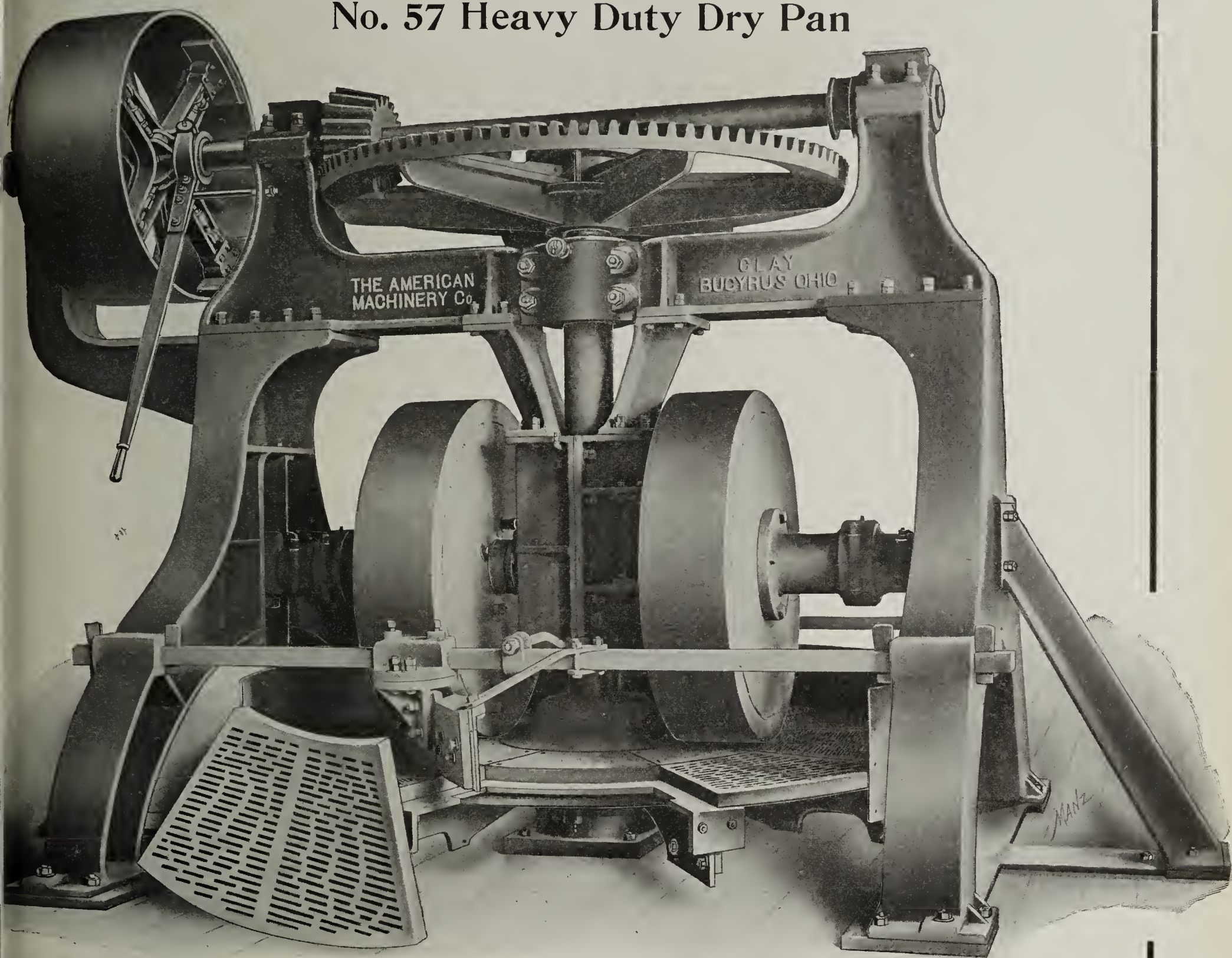
The best brick proposition in the United States. Southern location, healthful climate, good town and schools. Can work year round. Property consists of 800 acres coal, with vein of black curly shale 5 feet thick underlying. Suitable for fine pressed brick or anything made from clay. New plant on railroad, at mouth of mine. Also here other veins of plastic clay, red shale and silica rock. Owned by inexperienced men. Bargain for quick buyer.

BOX 447,
11 1 d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
pages 560-561.

FOR EXTRA HEAVY GRINDING

No. 57 Heavy Duty Dry Pan



The No. 57 Dry Pan is especially designed to give satisfactory service where extra heavy reducing machinery is required. Particularly adapted to refractory clay. The mullers are large and heavy, 54 inches in diameter and 13 inches face. Weight of each muller 8,300 pounds. Should a heavier muller be desired the construction of the pan is so ample that 2,000 pounds can be added to each muller if necessary. To safely carry these mullers the pan has been designed throughout in a manner to provide an ample factor of safety. The revolving base, step and vertical shaft are all proportioned to easily carry the load placed upon them. The gearing is large, giving a great leverage to drive the heavy base for the large mullers to ride upon when grinding the material. The driving shaft is 4 inches in diameter, the vertical shaft is 8 inches, and the muller shafts 5 inches, all being made of steel.

The mullers have independent drive with heavy steel shock absorbers. Long muller sleeves, with automatic oil device. The step is our equalizing type with phosphor bronze disc run in oil. Disc removable without molesting step or housing. Vertical shaft is quickly removable. Mullers removable independent of each other. Adjustable and reversible steel scrapers. Face plates, muller tires and muller plates all made of special wear resisting iron. Full description for the asking.

We build every class of clayworking machinery.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



American Steam Pipe Rack Dryer

(Patented)

Too much care can not be taken in laying out and constructing your Dryer. That is why we maintain an engineering department competent to successfully carry out this work. It is no more expensive to be right, in fact it eliminates a great deal of operation trouble and expense. Our engineering department will look over your plant and give you the proper layout. Our factory will deliver you an equipment for the dryer which is faultless in material and manufacturing. With these attributes of success your dryer trouble will be eliminated.



The American Patented Steam Pipe Rack Dryer is designed by specialists in this class of dryers. It is constructed of the very best material in a thoroughly workmanlike manner, under the direct supervision of the best Engineering and Manufacturing Departments in the clayworking field.

It is the **ideal dryer** with **no cost of maintenance** and the **lowest possible cost of operation**.

The Alsip Patented Cable Delivery System, which is owned and controlled by us **Saves Labor, Protects the Product** and **Economizes Space**.

We own and control the vital patents which make the Steam Pipe Rack Dryer a success and will protect with a surety bond any user of the American Steam Pipe Rack Dryer who has fears of interference.

We have just received a number of additional patents on this dryer which place it still farther in advance of others. We will be glad to correspond with you relative to this or any other Dryer. We build every type of dryer and are prejudiced in favor of none. Your clay and its drying properties govern us in recommending a dryer.

We build every machine and appliance needed for the production of every class of Clay Products by any process.

**The American Clay
Machinery Co.**



**Bucyrus,
Ohio, U. S. A.**



Mention THE CLAY-WORKER.

Written for THE CLAY-WORKER.

NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



INTER SEEMS to be at hand, and with it comes a cessation from the active building season, although it is seldom in these cities that there is not a fair volume of building under way. But there is something of a conservative attitude dominant at present, although it seems to be passing away slightly, as is to be noted by the fact that at least two large jobs—one in each city—have been taken up during the month. But the volume of work projected, which may be taken up during the winter, is really lighter than it has been at this date in several years. Much of the work of the latter part of the season was finishing up work on earlier projects. There have been comparatively few large jobs taken up within the past three months. The crop disappointment, the election, the shortened money market, and the tendency on the part of banks to discourage new enterprises have all had their part in the depression in building.

It is probably just as well that this has come about. A continuation of the building rush would doubtless have resulted in a vigorous effort being made on the part of united labor to force wages still higher. They would have the general agitation of the high cost of living as an excuse, and would have urged increased wages, with the result of setting back projects which would have been taken up and the preliminaries gone through with, only to find that the cost would be too high to consider. Instead of this a lessened volume of work has served to hold wages where they have been, and in some instances to allow a reduction in them. Builders and contractors are in better shape to figure up their costs and expenses and to decide what they can do in the way of bidding on work.

St. Mark's Episcopal Congregation, in Minneapolis, has just dedicated a new church on Lowry Hill, at Hennepin avenue and Oak Grove. The structure is of cut stone exterior walls. The interior of the church contains a handsome arrangement of pressed brick and ceiling tile. The pressed brick in the building was furnished by the Hydraulic Press Brick Company, St. Louis brick being used. The ceiling tile was also from the same company. The rough tile which backs the face tile came from the National Fireproofing Company, of Chicago, being furnished through the Johnson, Jackson & Corning Company, of Minneapolis and St. Paul. The ceiling work was laid by the Gustavino Construction Company. While the structure is not wholly of clay ware, yet the introduction of pressed brick and ceiling tile into such a prominent structure as this building will be a lasting advertisement, in the better sense, of the adaptability of such wares. The worshipers of St. Mark's will have a structure of enduring strength and beauty so far as the clay materials are concerned. The structure cost over \$200,000.

The officials of the Northwestern Clay Association are looking forward to the annual meeting which will be held in January to be something exceptional. It is hoped to get together a program which will touch upon all interests within the ranks of the association and will give all something worth their while as a business, entertainment and educational proposition. While no details have been completed, yet the committee hopes to have the most attractive program yet offered its members.

The sudden death of George W. Higgins, of Minneapolis, the latter part of October, came as a shock to all who knew him. Mr. Higgins was for some years connected with the Minneapolis Brick and Tile Company, and was prominent during that time in the Builders' Exchange of Minneapolis, serving as its president for two terms. Mr. Higgins was taken almost without warning. He had been down town and during the afternoon had sustained a fainting spell, from which he seemingly recovered, and went home without assistance. He spent the evening at home with his family and was apparently in good health, retiring some time after 11 o'clock. Soon after he was observed to be distressed and a physician called,

but nothing could be done, and he died without regaining consciousness. Mr. Higgins was a staunch and consistent Prohibitionist, and had been elected to the Minnesota Legislature, being one of the three of his party to be successful, and was making a campaign for re-election.

Mr. Higgins was an admirable man, honest and sincere, a genuine gentleman, whose counsel and wisdom were always found to be of great value in the trade organizations in which he was associated. His passing will be severely felt.

The census of 1910 has been given out for these two cities, and their respective showings are remarkable. St. Paul had a total of 214,744 people, a gain of about 50,000 in five years. Minneapolis had 301,408, a gain of around 100,000. The two cities have a joint population of 516,000. Last year (1909) they did building, according to the permits, aggregating \$25,000,000. This year the total will run close to that figure. Here is a field for the exploitation of clay products that is not appreciated by the people who are located in this center. It offers a field for the development of the sale of clay wares and fireproof construction materials that cannot be overestimated.

The towns in the extreme northern part of Minnesota, which were devastated by forest fires recently, Spooner and Baudette, will rebuild without delay. And they propose to have a building limit within which nothing less than permanent construction goes for the business district.

The American Clay Products Company, of Stillwater, Minn., whose plant was burned out during the summer soon after it was completed, has rebuilt its plant and is again ready for operation.

Minneapolis building permits for October aggregated \$1,177,275, against \$1,035,815 for the same month of last year. This adds one more month which shows a gain over a year ago, there being so far but one month which fell behind, and the net gain for ten months is sufficient to assure that the year will go ahead of last year.

St. Paul had a heavy month in October of 1909 in permits and fell behind this past year, having \$877,003, against \$1,324,400 for the month of last year.

A government test of tile for farms is to be made on several farms in northern Iowa, near Mason City, and in southern Minnesota. The work will be laid out scientifically, and specific records will be kept. The work will be in conjunction with the agricultural departments of each State. The mains are to use ten-inch tiles and the laterals will be somewhat smaller.

The John Wunder Company, of Minneapolis, general contractors, has the contract for rebuilding the building at 253-255 Nicollet avenue, Minneapolis, which was recently burned out. It was occupied by the Leader Department Store, which also occupied the adjoining building. The structure will be rebuilt to conform to the corner structure, and will have a mottled pressed brick exterior.

Theodore F. Curtis, of Minneapolis, and Frank J. Mackey, of London, have started work in Minneapolis at Third avenue South and Tenth street for the erection of a family hotel building to cover half a block. It will be 130x330 feet in size, ten stories and basement, of Coon Creek brick exterior walls. The Leonard Construction Company, of Chicago, has been awarded the contract for the foundations. The building will cost complete \$1,200,000.

The St. Paul Board of Police Commissioners will consider plans for a three-story and basement police building to cost complete about \$250,000. It is proposed to build the structure on the plan of an office building, so that future enlargements may be arranged by additional stories.

The St. Paul Bread Company has bought a block at Twelfth and Robert streets and expects to erect a baking plant thereon to require the entire tract at a cost of \$150,000.

The Low German Society, of St. Paul, is pursuing preliminary plans for the erection of a complete building to cost \$100,000.

The Fidelity Storage and Transfer Company, of St. Paul, is negotiating for the erection of a new storage warehouse to cost \$100,000 at Third and Franklin streets. A building to be on the side hill and ten stories high is projected. T. WIN.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.



LOCAL BUILDING conditions in Buffalo, although quiet at present in comparison with the unusually brisk season just passed, are exceedingly good. Every plant is running at full time and notwithstanding the fact that this is the season of the year when business slacks up considerably, there is no over-supply of bricks on hand. The demand for building brick has been stimulated the past season by Buffalo's rapid development as a manufacturing and distributing center of the Middle West. Building is not limited to one section of the city, but is universal and demands for sites for new industries are coming in daily.

One of the best indications of the city's growth is the fact that two of the largest and most popular hotels of the city, the Lafayette and Statler, have been forced to make large additions because of their increased patronage. The brick work for the Lafayette Hotel is furnished by the Ellicott Brick Company and the work just completed at Statler's Hotel was furnished by the Queen City Company.

The terra cotta work was furnished by the Atlantic Terra Cotta Company, of New York, which has factories in New Jersey.

On election day the English tap-room and the Dutch grill of the Statler Hotel were opened for the first time to the public. These rooms occupy the main floor of the new building. The most interesting feature of the English tap-room is the big stone fireplace opposite the lobby entrance and surmounted by a stone mantel. Grotesque heads are carved into the capstone and the low ceiling is divided into three bays by large stone columns, ornamented by carved signs of the zodiac. The mural decorations are considered by experts to be the best in the State. They represent coaching days in England. The windows are glazed with antique glass in heraldic designs. Directly out of the English tap-room the spectator walks into the Dutch grill, a lunch room designed for men. This room is adapted for private luncheons and stag affairs. A fine ball-room and banquet hall will be finished for a New Year's celebration.

Next to the hotels in importance the big factories going up in every section of the city show that present and future orders are bound to be large. Brick is coming into use as a building material in Buffalo with greater prominence than ever before. Black Rock, one of Buffalo's biggest industrial centers, makes large demands upon the brick dealers and the new King Sewing Machine Company is one of the largest brick factories lately erected.

Out at North Collins the Shale Brick Company have a new plant about completed and are now turning out first-class shale common brick. At present they are building a fine down-draft kiln. The Queen City Brick Company reports a big business. Out at Lockport the new Simonds Manufacturing Company has built an entire new building, which has taken one-half million of brick. In South Buffalo the Rogers-Brown Iron Works are building a new plant which requires a half-million of brick. Two millions of brick are being used in the construction of the fine new Mother House of the Sisters of Mercy at Cazenovia Park. The site of the new Technical High School has been chosen at Bennett Park, but building plans are not yet ready to submit. This will, however, be one of the largest buildings of the city, located on the east side of Main street. On Glenwood avenue a million of brick were furnished for the construction of the new school house, and another million was furnished for another school building on Front avenue. Keenest interest is evident among the Buffalo men concerning the coming convention at Louisville, Ky., in February, 1911. A big delegation will go from Buffalo.

Dan H. Lewis, secretary of the Automobile Club of Buffalo,

has announced that the main road between Williamsville and the Transit, which is being paved with brick, is now open for traffic with the exception of a quarter of a mile. This is a favorite road for auto travel and its completion is anticipated.

Building permits during September and October indicate a prosperity that is most encouraging. September alone registered 253 permits, total valuation being \$606,000. The bulk of the permits were for dwelling houses. One of the large office buildings will be located on Broadway, will be seven stories high, of brick, and cost something like \$75,000. On Washington street is to be a ten-story brick office building, costing \$100,000. A \$35,000 two-story brick office building erected for the Buffalo Dry Dock Company. The F. N. Burt Company will build a brick five-story and basement at a cost of \$50,000. Other buildings to be erected are a forge, blacksmith and machine shop for the Niagara Machine and Tool Company, and Danahy Company with other companies are building brick additions.

It is possible that a new Washington Market, to be conducted as a municipal market, will be erected. Plans for this have been submitted. The building will have a frontage on Chippewa street of 26 feet and a depth of 400 feet, with a driveway of 40 feet cut through the building in the form of a cross. The butchers and many of the market men, however, are urging repairs which, they declare, will be sufficient, especially if the outside walls are built of brick and roofed with glass.

The Buffalo Chamber of Commerce is getting into shape an industrial bureau where sites for new industries may be registered. When an industry proposes to come to Buffalo and applies for a good location the industrial bureau will furnish a list of properties, showing location, description and price. All properties listed exclusively by agents must be for a definite period of not less than three months.

Friends of Alfred L. Lyth, of A. Lyth & Sons Company, tile manufacturers, are glad to learn of his recovery from an accident some weeks ago. Mr. Lyth has been confined to the house for the past month.

Leo V. Lannen, son of John Lannen, a prominent building contractor, with offices in the Builders' Exchange, and who lives at 667 Oak street, was seriously injured Sunday evening, November 6, when his automobile was wrecked on Main and Exchange streets. He was taken at once to the Emergency Hospital. The surgeons found the frontal bone of the skull seriously fractured and expressed grave doubts as to his chances for recovery.

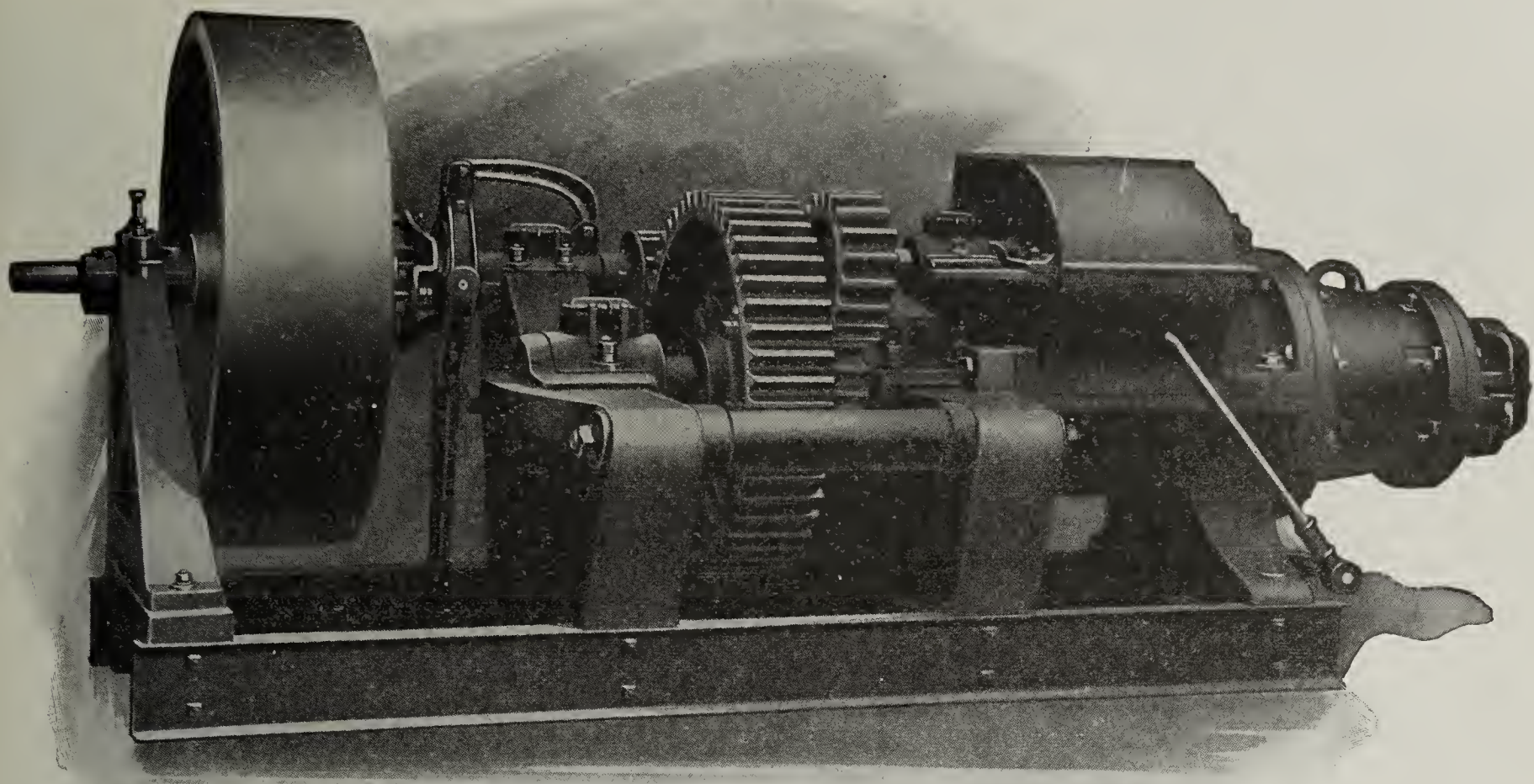
Peter Straub, a well-known building contractor, died very suddenly of heart disease on Friday, November 4. Mr. Straub was talking with his wife and expired in her arms. He was fifty-seven years old and had lived in Buffalo many years.

Mr. William Summers, the contractor for the Sisters of Mercy building, at Cazenovia Park, was out inspecting the work and stepped accidentally into an open space, falling four stories and meeting death instantly. He was a man of broad charities and an esteemed citizen. Over 100 of his employes acted as escort to the grave. When the Statler Hotel was first built Mr. Summers was the building contractor.

JOSEPH A. MCGUIRE.

BITULITHIC NOT GOOD PAVING MATERIAL.

Backing his contention that bitulithic paving is not advisable paving for street construction, C. A. Mullen, superintendent of paving in Milwaukee, Wis., has taken samples of bitulithic and tar macadam and has them on display in his office. A sample of patented bitulithic was taken from Brady street, where traffic is light. It cost \$2.18 per yard and has been down four years. A sample of tar macadam, laid at a cost of \$1.67 per yard, down five years, was taken from Farwell avenue, where traffic is heavy. Mr. Mullen says the bitulithic was a swindle and that either paving could be laid by the city for \$1.00 per yard.

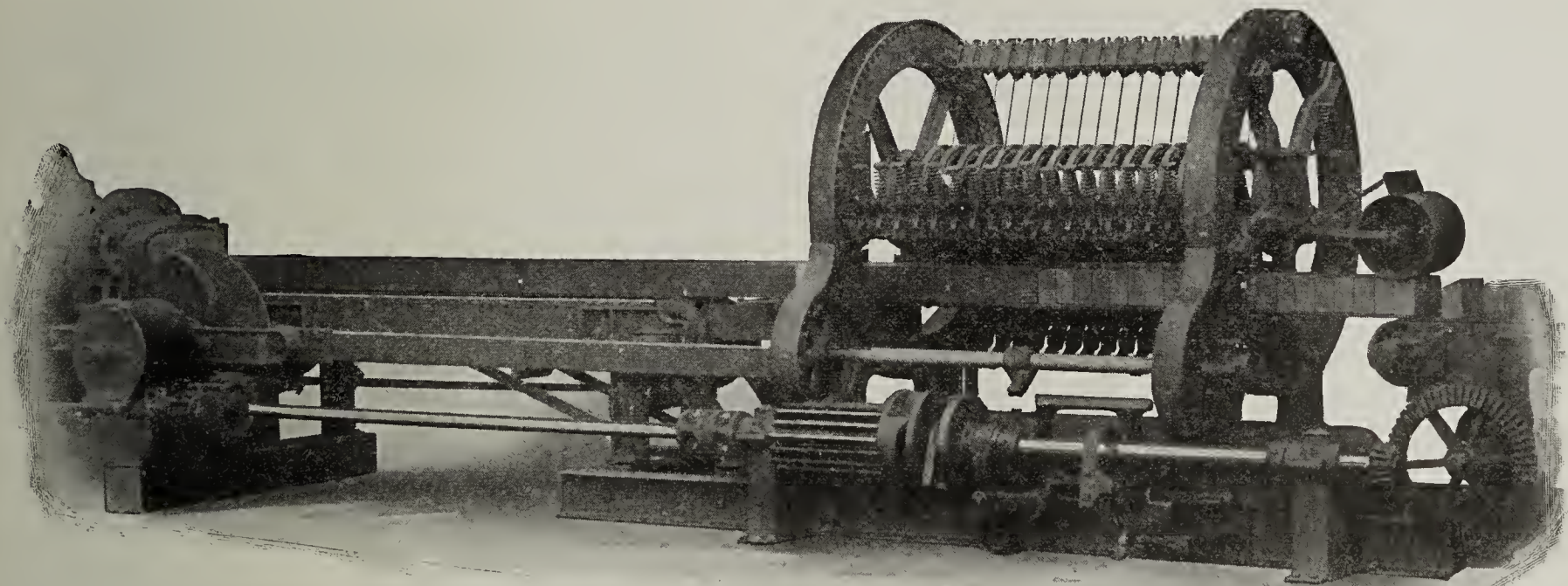


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

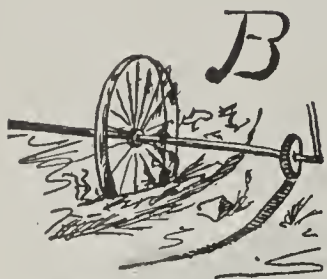
They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 592-595.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



BUILDING IN San Francisco is by no means active, though October compares favorably with the previous months of this year, and several contracts have been let recently for several large brick structures, some of which will be handsomely finished in architectural terra cotta. Business is fairly active in most departments just now, as the rainy season is already considerably overdue, and there is a general rush to accomplish as much as possible on buildings under way before the rains begin, as well as to get a number of sewer jobs and the like out of the way. While a number of large warehouses are being built of concrete just now, some of the most important work coming out is on lodge and society buildings, public and semi-public work and apartments, which will require large quantities of brick and terra cotta. Pressed brick is also being used in a good many large private residences.

The local market on common brick shows little or no improvement, an occasional increase in demand being insufficient to make much impression on the supply, and prices remain at a low level. Manufacturers have been disappointed in this year's demand, which has been hardly as good as in 1909. Comparatively few of the plants in this immediate vicinity have been in continuous operation, and the dull winter season will commence with large stocks on hand both here and at several of the plants, though a few have been able to keep pretty closely cleaned up. The accumulation is all in strong hands, however, and no further reduction of prices seems likely at present. The smaller operators are keeping out of the market entirely, and on the whole conditions are better than they were a year or so ago.

There is no decrease in the demand for sewer pipe, and in fact there has been a big demand for quick delivery for the last few weeks, as many towns are endeavoring to finish up new storm sewers, repair work, etc., before winter. The demand in San Francisco will continue on the present scale for several years at least, and the annexation of a large adjacent territory to the city of Oakland will mean an enormous extension of that city's sewer system. Contracts will be let all over the State during the winter for work to be started next spring, and from present indications the manufacturers in this line will have a steady run.

Fire brick is a feature of growing importance in California, as great quantities are now required by numerous smelters, chemical works, oil refineries, etc., and the demand is increased by the recent establishment of some new steel works. A new firm in this field is the Livermore Fire Brick Company, at Livermore, Cal., which has just commenced the operation of an up-to-date plant, and will install six large kilns in the near future. So far the material has been brought in from outside points, but the company has a large deposit of good fire clay, which will be developed as soon as possible.

The Holmes Lime Company is having continued success with its Ione fire brick, and particularly with the clay from Ione, which is used by some of the largest consumers in the State. Other important manufacturers in this line are the Carnegie Brick and Pottery Company, the Steiger Terra Cotta and Pottery Works and N. Clark & Sons, the latter having just taken a large contract for delivery to the quicksilver mines at New Almaden, Cal.

The Vallejo Brick and Tile Company is still selling its entire output for sewer work, but expects to get into the

The Furlow Pressed Brick Company, at Redondo, Cal., has installed a complete plant for the manufacture of sand-lime brick, with a daily capacity of 17,500 brick. J. H. Furlow is president of the company.

N. Clark & Sons are preparing to improve their new offices by the addition of decorations and a large line of samples. They find their new storage yard here a great convenience in handling the business on this side of the bay. Their output of sewer pipe is closely sold up, and they have recently taken

several important contracts for pressed brick and terra cotta, including the eight-story apartment house for Rivers Bros. on Golden Gate avenue, near Taylor street; the new building of the Order of Eagles and the Realty Syndicate building in Oakland.

paving business in the near future, as it is believed that this material is to receive a trial in San Francisco. The annual meeting of stockholders of this company will be held at the local offices November 15.

Considerable encouragement is felt by manufacturers of paving brick on account of the installation of two blocks of brick pavement in Oakland. This experiment has been contemplated for some time, and the brick, which were brought from Seattle, have been on hand for over a year.

Superintendent C. F. Nicklaus, of the Houze Brick Company, of Vallejo, Cal., states that financial arrangements have been completed for the contemplated improvements, and that work will shortly be started on the installation of machinery for the manufacture of paving brick.

The plant at Honolulu, T. H., for the manufacture of brick from lava, which has been in contemplation for some time, is now being installed under the supervision of J. Rice, of San Francisco, the machinery having been bought in the East a couple of months ago. The plant will be completed before the end of the year, and some large government contracts are expected. The feasibility of making brick from lava has been demonstrated during the last year, and the product is of a high quality.

The California United Brick and Tile Company has been incorporated at Los Angeles with a capital stock of \$250,000 by C. C. Davis, J. Jones, F. R., A. A. and H. C. Yerxa.

The Pacific Brick Company's plant at San Pedro, Cal., has closed for the season, the summer's output being 1,450,000 brick.

The Pioneer Brick Company, of Visalia, Cal., is fitting up new offices in that city.

The Standard Sewer Pipe and Terra Cotta Company has acquired the business and plant of the California Brick and Clay Manufacturing Company at Antioch, Cal. W. F. Barnes, secretary and general manager of the new company, says the plant will be overhauled and started up in the near future. This company was incorporated last month with a capital stock of \$500,000, W. M. Hall being president. The others principally interested are L. W. Cutler, William Sea, Jr., and H. C. Norton.

George LaShell, formerly of Hendry & LaShell, of Denver, Colo., and a member of the Denver Brick Manufacturers' Association, is now manager of the Long Beach Brick Company, Long Beach, Cal.

The main building of the new brick plant on the Haggin grant, Sacramento, Cal., is about complete, and the first kiln will be ready for operation within a few weeks. Its output at first will be used to complete the other buildings, kilns, etc. The Northern Electric Railway has laid a spur to the plant, and part of the raw material will be brought from near Lodi, on the new line of the Central California Traction Company.

The Superior California Brick and Tile Company completed the installation of machinery at its plant at Willows, Cal., about the middle of October, and is now starting active operations. The company will cover a large territory west of the Sacramento river, where most of the brick formerly used has been shipped from a considerable distance.

The San Francisco plant of the Steiger Terra Cotta and Pottery Works is keeping very busy in all departments, and a good demand is reported for terra cotta work, though most of the jobs now in hand are small. This company has been shipping a large lot of architectural terra cotta on a contract at Bakersfield, Cal.

The San Francisco Brick Company has had a very successful year in common brick, having operated both its local plants with very little intermission and keeping pretty well sold up all the time. This company is one of the strongest in the local market, having particularly good facilities for handling the city business, and turning out a product which finds great favor.

The Standard Oil Company is erecting a number of new stills at its plant at Richmond, Cal., which will require a large amount of brick work.

SUNSET.

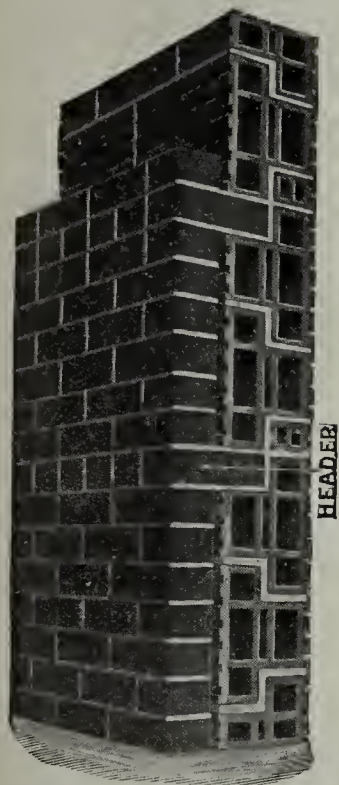
MR. CLAYWORKER!

Why Not Manufacture Hollow Building Tile?

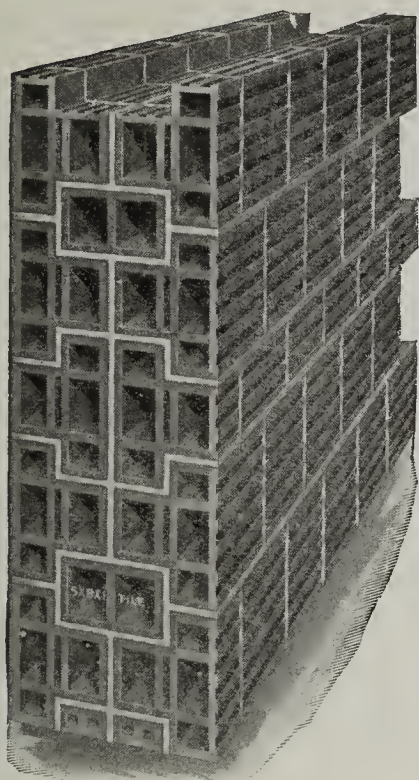
READY SALE!

BIG PROFITS!

This material is bound to replace wood in residence building. Walls speedily built, are adapted to stucco finish. Walls can be faced with common or facing brick. These tile may also be used for foundations, partitions, etc.



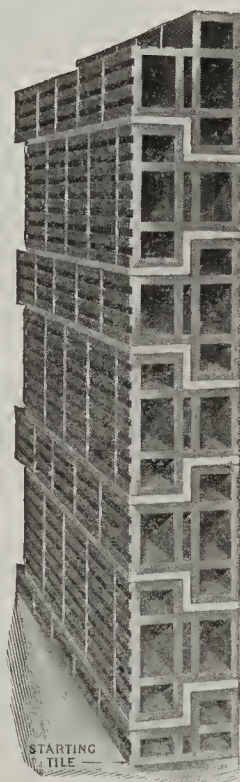
Wall Faced With Pressed or Common Brick.



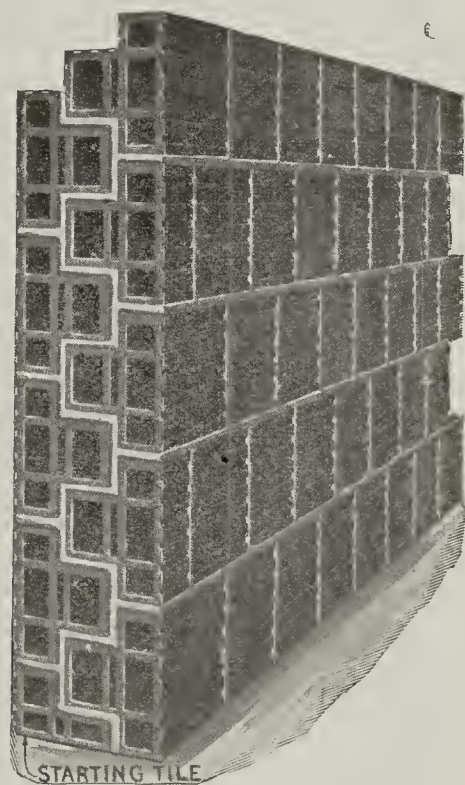
Sixteen-Inch Wall.

COST

Each block displaces *nine* common brick. The laying-up cost of walls built of these blocks, including mortar, is *less than half* that of common brick walls, and also less than walls built of any other tile on the market.



Eight-Inch Wall.



Twelve-Inch Wall.

ADVANTAGES

As cheap as frame.
Better than brick.
A Hollow wall.
A Light wall.
A Strong wall.
Every brick a header.
Little mortar required.
Lays up rapidly.
Vermin proof.
No furring required.
Thoroughly interlocked.
Moisture proof.
Sound proof.
Warm in Winter.
Cool in Summer.

STRENGTH

The question of the carrying capacity of Hollow Tile Blocks was thoroughly investigated by commission consisting of The Osborn Engineering Co., Vorce Engineering Co., and Prof. Dukes of Case School of Applied Science, and upon their report the Building Code of Cleveland, Ohio, was so amended as to admit of their being loaded 200 lbs. per square inch of available web section (which is less than 10% of what they found their actual carrying capacity to be.) See Sec. VIII, Title V, amended Jan. 18, 1908, Cleveland Building Code.

This applied to the Denison Interlocking Brick, permits its being safely loaded over five tons per square foot of wall area.

Denison Interlocking Hollow Brick and Tile

CAN BE MANUFACTURED BY YOU UNDER ARRANGEMENT! INVESTIGATE!

Write today for terms and territory. First come, first served.

Catch up with the times! Write today for all information to

THE OHIO CLAY COMPANY

Schofield Bldg.

CLEVELAND, OHIO

Mention THE CLAY-WORKER.

Louisville & Nashville R. R.

The attractive way to Louisville
for the

Nat'l Brick Manufacturers' Association

February 6-11, 1911

Five trains daily from Cincinnati

Two trains daily from St. Louis

Two trains daily from

New Orleans, Memphis, Mobile,
Birmingham, Knoxville, Atlanta

Before completing arrangements for your trip
consult nearest Louisville & Nashville agent or

Address

W. A. Russell, General Passenger Agent
Louisville, Ky.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required:

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Barrett's PAVING PITCH



EAST RICH STREET, COLUMBUS, OHIO, PAVED 1892.

Here is an 18-year-old pavement. It looks like new—no breaks, no cracks, no undermining, no holes, no unevenness of contour, showing that the BARRETT'S PAVING PITCH with which the joints were filled gave perfect protection to the foundation against water and frost.

Watertight, Elastic, Adhesive

In Barrett's Paving Pitch we offer to city engineers a grade of coal tar pitch which experiment and experience have shown to be the best for use as a filler in the joints of brick, granite or wood block pavements.

The merits of pitch as a pavement filler have caused it to be almost universally adopted, but asphalt, cement and even sand still have their advocates. Asphalt has the fault of not staying watertight. Asphalt, being weak in adhesion, cleaves off the blocks when they contract and lies loose in slices which can be picked out with the fingers. Asphalt is costlier than pitch and more difficult to apply.

Cement prohibits expansion in hot weather, and the tension results in bulges and blow-outs. Cement makes the pavement bridge depressions of the foundation, and the weight of a heavy team sooner or later smashes the arch, causing long dangerous cracks. And cement makes excavation difficult and costly.

Sand, of course, is a cheap filler, but is not watertight and admits frost to the foundation.

Barrett's Paving Pitch stays watertight. It remains elastic and adhesive and simply settles a little lower in the joints when the blocks contract or rises when they expand.

Booklet giving further information on request.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

Chicago
Pittsburg

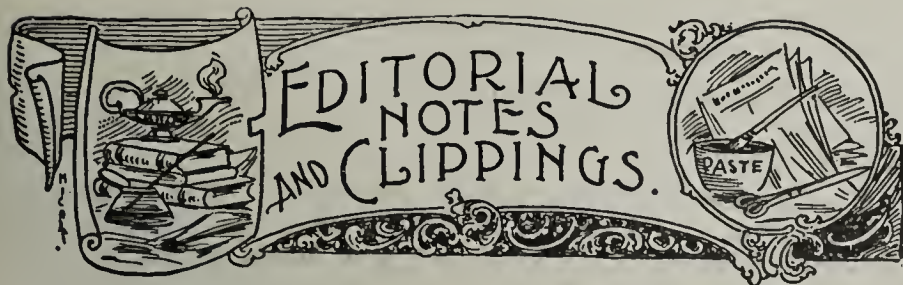
Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
Seattle

London,
England



The Dalton Brick and Tile Company, of Poplar Bluff, Mo., has increased its capital stock from \$10,000 to \$25,000.

The Camden Coal and Clay Company, of Camden, Ark., has been incorporated by D. Frank Clark, P. N. French and Dr. A. S. Garnett.

The Shaw Kiln Company, of Chicago, has been incorporated with \$250,000 capital. The incorporators are F. D. Shaw, R. S. Larrett and A. J. Gray, Jr.

The American Sewer Pipe Company is rushing the work of its new plant at Brazil, Ind., as fast as possible, and hopes to have same ready for operation by the first of February.

T. M. Hart writes that he expects to go into the brick business again at Pecos, Texas, and wants a copy of THE CLAY-WORKER, as he wants to get in touch with the machine men.

Lake County Clay Company, Metuchen, N. J., has been incorporated. Capital, \$100,000. Incorporators: Albert Acken, Mabel Acken and William C. Acken. The company is to engage in the mining of clay.

F. R. Carter, of Peoria, Ill., reports a good season. He has three brick plants, with a combined capacity of 15,000,000 a year of both paving and building brick of such a high grade that it is never any trouble to find a ready market for them.

B. H. Reed Brothers, brick manufacturers at Hightstown, N. J., have had a very busy season, and are now building a kiln of an improved type. In addition to several million brick, they also manufactured large quantities of tile, for which they found a ready sale.

Samuel Holt, one of the most prominent brick manufacturers of New Hampshire, and a native and lifelong resident of Concord, died very suddenly Monday afternoon of apoplexy. Mr. Holt was stricken while on the way home from his brickyard at the lower end of the city.

The Dennis Brick Company has transferred its plant, partly in the town of New Britain, Conn., and partly in Newington, to William T. and Thomas J. Raymond, both of Norwalk, that State. The property consists of thirty-four acres of brick land with a brickmaking plant and also thirty acres of farm land.

Clarksburg Brick Works, of Clarksburg, W. Va., has been chartered to manufacture brick, mine coal, drill for oil and gas, etc. Capital, \$25,000, of which \$15,000 has been subscribed and \$1,500 paid. The incorporators are James M. Coffman, Hugh Jarvis, Cecil C. Jarvis, Haymond Maxwell and William R. Coffman, all of Clarksburg.

Petition for a charter has been filed by Messrs. H. B. Skeelee, C. H. Koneman, J. F. Heitmann and Carl Mendel, who wish to become incorporated as the Savannah Brick Works, with a capital stock of \$50,000. They will have a general brick manufacturing plant, with the principal office in Savannah. The petition was filed by E. S. Elliott and U. H. McLaws.

C. W. Northrup, the veteran tile manufacturer of Colfax, Ind., has recently directed the installation of a drain tile equipment at the plant of E. T. Lewis Company, Nashville, Tenn., and states that their clay is among the best he has ever encountered in all his years of experience in the business. They are now making an excellent grade of tile and can supply the market in the vicinity of Nashville. Mr. Northrup predicts that there will be a great deal of farm drainage in Tennessee during the next few years.

The Simons Brick Yard Company, of Lima, Ohio, was organized recently, and the firm, made up of Mr. A. Simons and his four sons, H. A., C. A., Raymond and Earl Simons, elected officers and will greatly enlarge the operations of the yard, which has formerly been under the entire control of Mr. A. Simons. C. A. Simons was made president of the new company, his father is vice-president, while Raymond is secretary and treasurer and H. A. general manager. The yard has been operated on its present site for thirty-eight years, but the business of the company has increased to such an

extent that it is necessary to enlarge the plant, and for this reason more ground will be purchased.

The Trenton Potteries Company will build a two-story brick addition to their factory at Trenton, N. J., to cost in the neighborhood of \$6,000.

The North East Unit Brick and Tile Company, of Port Jefferson, N. Y., has been incorporated with a capital of \$42,000 by D. W. Emmet, St. James, L. I., N. Y.

The Calhoun Clay Products Company, of St. Louis, has been incorporated with \$100,000. The incorporators are Charles P. Tilley, of Belleville, Ill.; A. T. Groesbeck and others.

Dr. Samuel Dibble has purchased a tile machine and will erect a small plant on his farm at Orangeburg, S. C., where he will manufacture drain tile for his own use and the nearby neighbors.

L. A. Picha, 712 Shelby street, St. Paul, Minn., writes that a company will be organized to start a brick plant there in the spring, and he would like to receive catalogues of brick machinery and supplies.

The Muskogee (Okla.) Vitrified Brick Company have resumed operations after having been shut down for three weeks during a short lull in the season's business. They have a daily capacity of 100,000 brick.

The National Brick and Clay Company, Portland, Ore., write that they are in the market for pyrometers, and desire the system by which the pyrometers may be installed in the kilns and the records read in the office. They also want to purchase hand pyrometers.

The Moxahala Brick Company has been incorporated to manufacture, buy, trade and deal in every kind of shale, clay and potters' material. The incorporators are F. H. Mitcheler and Floyd Hickie, of Columbus, Ohio, and Harry W. Davis, of Wilmington, Del. The capital stock is \$200,000.

Articles of incorporation for the Southern (Indiana) Brick Company, of Linton, Ind., have been filed. The object of the corporation is to prospect for fire clay, shale and coal and to build and operate a brick plant. The capital stock is \$80,000. The directors for the first year are Elmer R. Cravens, who is president; Lew W. Maddox, Jasper N. Thompson, secretary; Charles D. Beck, vice-president; William C. McBride and Jesse F. Weisman.

Charles J. Newman, manager of the Gamble & Stockton brick and tile plant at Jacksonville, Fla., writes that they are feeling pretty good over the past season's work, having turned out since the middle of July 4,000,000 common building brick, 3,000,000 of which have been shipped on orders. They have just opened up their first kiln of pavers, which is an unusual clay product for Florida, and find they are O. K.

Beecher Ward, of Fairmont, Minn., and several other capitalists, including one or more of Albert Lea, have acquired 70 acres of land north of Glenville, which is underlaid with an inexhaustible quantity of superior tile clay, and are now organizing a corporation having a capital of \$250,000 to erect an immense modern tile factory, and engage in the manufacture of tile upon an extensive scale. The headquarters of the company will be at Albert Lea.

One of the most complete and up-to-date brick plants in Nebraska is now in the course of construction on the site of the old plants of Polinske, Schellak & Co., Hastings, Neb., which were burned several months ago. The company will invest a little more than \$75,000 in the construction of the new plant, which is to have a number of up-to-date features. The machinery will be turned by individual electric motors in each department, which will furnish power that may be turned off or on when desired. The company is installing an

(Continued on page 558)



All persons are warned against INFRINGEMENT.

FISKE & COMPANY, Inc.

BOSTON.

NEW YORK.

EDITORIAL NOTES AND CLIPPINGS—Continued.

electric light plant of its own and will manufacture its own electricity for motive power in the same plant.

Kenneth Seaver has been appointed chief engineer of the Harbison-Walker Refractories Company, with headquarters at Pittsburg, Pa.

The well-known clayworks engineer and chemist, S. Geijsbeek, has resigned his position with the Northern Clay Company of Auburn and is again located in Seattle.

The Lake Union Brick Company, Seattle, Wash., have been putting their new brick on the market now, and they will work up a nice trade, being nearly centrally located.

The Northwest Brick and Lime Company is the name of a new concern at Seattle, Wash., which has recently been incorporated by E. S. Dodds, A. G. Keene, G. S. Hastings and others.

If you are looking for a good man for superintendent or head burner for your brick plant, or are looking for a man to install new machinery, address Box 11, Edwards, care THE CLAY-WORKER.

Sherman S. Brady, a well-known brickmaker of Houston, Texas, was instantly killed when his automobile turned over with him while going at the rate of seventy-five miles an hour. A wife and two daughters survive.

L. L. Davis, proprietor of the Wiggins Brick and Tile Company, of Wiggins, Miss., committed suicide by hanging himself. Overwork is thought to have unbalanced his mind. He had been married only a month.

The Valley Brick Company, of Charleston, W. Va., has its plant in full working operation, turning out 15,000 bricks daily. The output will be increased to 35,000. All of the machinery for the plant was furnished by E. M. Freese & Co., of Galion, Ohio, under whose supervision the plant was constructed.

The Carbon Coal and Clay Company, of Indianapolis, Ind., has been organized to develop coal and clay properties with a capital stock of \$50,000. The directors are W. C. Shoemaker, A. A. St. Clair, J. N. Balch, C. H. Ehrmann and W. R. Mayo.

James Florey, of Downingtown, Pa., has purchased the Spring City Brick Works owned by J. Frank Boyer, of Norristown, Pa., which he will operate in connection with his two plants at Downingtown. He has just purchased thirty more acres of clay at the latter place.

The North Mound Valley Brick Company, Mound Valley, Kas., has recently installed oil burners at their plant for burning and drying brick. The order for the oil burners has been placed with Tate, Jones & Co., of Pittsburg, Pa., who make a specialty of installing complete equipments for fuel oil and natural gas burning.

Riverview Improvement Company, of Fairmount, W. Va., has been organized to manufacture and deal in lumber, brick, building material, etc. Capital, \$20,000, of which \$10,000 has been subscribed and paid. Incorporators are Glenn F. Barnes, Clarence D. Robinson, John Henshaw, Murray Dickinson and L. E. Nuzum, all of Fairmont.

The plant of the Central Georgia Brick Company has been sold to C. H. Peacock, of Eastman, Ga. Associated with Mr. Peacock are W. L. Mathers, who will be secretary and treasurer; J. B. Wall, general manager, and G. H. Rankin. Extensive improvements will be made in the plant, including the installation of a new steam dryer, and the output will be increased to 100,000 brick per day.

One of the large brick kilns at the Glen-Gery Brick Works at Shoemakersville, Pa., collapsed while workmen were repairing it, and four men were buried in the ruins. It is estimated that 20,000 brick were contained in the arched kiln, the sides of which bulged out and weakened the center sufficiently to permit of its utter collapse when the men were inside repairing. They were completely covered and quick action was necessary to release them to prevent more serious results.

H. R. Lowder, of Bloomfield, Ind., is interested in a large body of shale which has been found in that vicinity. It is located within a quarter of a mile of the Monon railroad, so that excellent shipping facilities would be assured. The shale from a superficial examination is from 35 to 40 feet deep, and appears to be of a quality suitable for making paving brick. Either Mr. Lowder or Mr. A. J. Reilly, commercial agent of

the Monon railroad, Indianapolis, Ind., will be pleased to give further information regarding same.

The Zoar Fire Clay Company, of New Philadelphia, Ohio, has been incorporated by Charles W. Burry and others with \$65,000 capital stock.

The Ritger Excelsior Pottery, of Newark, N. J., has been incorporated with a capital of \$53,000 to manufacture pottery and earthenware, by Peter Ritger and Anton Ritger.

The District of Columbia will establish a brick manufacturing plant at Occoquan, Va. Convicts will make brick, which will be utilized for the construction of sewers in the city.

Chaska, Minn., has developed into quite a brickmaking center, 51,000,000 brick having been manufactured there the past season, covering five months. The yards are all practically owned by Klein Brothers.

W. C. Tilbury, of Delavan, Ill., died at his home in that city the latter part of October after a brief illness. Mr. Tilbury moved to Delavan twenty years ago and engaged in the brick business, which he had continued up to the time of his death.

George R. Pinkham, a well-known farmer and brick manufacturer of New Hampshire, died recently at his home at Dover Point, N. H., aged sixty-eight years. The deceased was born in Dover Point, where he spent his entire life, and always lived in the house in which he died. Besides a widow, he leaves one daughter, Mrs. George L. Winkley.

In order to increase the capacity of the Wylam (Ala.) plant to 85,000 brick per day, the Harbison-Walker Refractories Company will shortly begin improvements which will cost \$100,000. The plant has been in operation only a short time, but business has been so good that the increase has been decided upon. The present output is about 35,000 brick, but this will be increased about two-thirds.

Charles Albright, manager of one of the Sebring Brothers' potteries, at Sebring, Ohio, and a brother-in-law of the Sebring brothers, and three employees of the firm who were with him were all instantly killed when an electric company freight car hit their automobile. Albright, the owner and driver of the automobile, was hard of hearing. This, coupled with the fact that the approach of the freight car was obscured by the walls of a steep cut near the crossing, led to the accident.

Incorporation papers have been issued to the Kingsport Brick Company, of Kingsport, Tenn. The plant will be one of the largest brick manufacturing plants in the State, and it will produce bricks of the finest quality, as geologists have found some superior clay in the vicinity of the plant which it is claimed will make bricks that will compare with the best white and buff bricks. J. D. Whitaker, of Atlanta, Ga., is president and E. E. Mahan, of Rome, Ga., is vice-president of the concern. The main office of the company will be at Bristol, Tenn.

Duluth men have organized the North American Brick, Tile and Pottery Company and have begun work upon a large plant in the town of Walsh, Minn., near Tower Junction, on the Duluth & Iron Range Railroad. The company has 48 feet of blue clay, covering more than 100 acres, adjoining Walsh. This clay has been pronounced by experts the finest kind for building, fire and paving brick, tile and pottery. The company has been capitalized at \$25,000, and the incorporators are T. A. McDougal, J. A. Bergquist and M. Fahrman, Duluth, Minn.

A fire, the origin of which is unknown at this time, destroyed the barn, toolhouse and storehouse of the Taylor Brothers Brick Yard at Redlands, Cal. A house adjoining the brickyard and belonging to one of the employees was also destroyed. Twelve horses which were in the barn at the time were gotten out in safety. The barn and house were burned to the ground. The loss, which was partly covered by insurance, was about \$5,000, according to a statement made by Bert Taylor, one of the proprietors. Eighty tons of hay in the barn were destroyed.

A new concern to be known as the Upper Kittanning Brick Company has been organized and a plant of 8,000,000 yearly capacity has been erected at East Brady, Pa., where light cream and mottled brick, known under the general name of "Kittannings," will be made, leaving the original plant at Kittanning, Pa., to turn out all the white and gray brick. E. M. Houghtaling and H. Otto, of New York, is president; C. E. Foster, Bradford, Pa., vice-president; George W. Foster, secretary, and H. Otton Wittpenn, treasurer. Mr. George Foster will have the management of the plant.

COMICAL BLUNDERS.

Not though the writer knew
Some one had blundered,
His not to make reply,
His not to reason why,
His but to do and die.

May the shades of Tennyson forgive me for so paraphrasing a verse of his fine poem as a suitable heading for a few lines on my troubles with the printers. It is a serious subject. But there is a comic side to making every blunder, and we should cultivate the habit of looking upon it from that side, which, if we are optimists, we will do. In conversation with an editress I recited the lines closing with—

"The optimist sees the doughnut,
The pessimist sees the hole."

She replied: "I've something a good deal better than that. An optimist fell from the top of a thirty-story building and passing a man sitting in the window of the twelfth story, he waved his hand to him and shouted, 'I'm all right yet.'" "That is good," I answered, "but the writer was trying to make sport of optimism and instead told a good optimistic story. The man had a good side for eighteen stories, which is far better than, like the pessimist, to give an unearthly yell at the top and yell all the way down."

I used to be very angry when a mistake was made in one of my articles by the printer or by myself and not corrected by the proof reader, but I have learned to be more considerate and to say, "perhaps no one will notice or even read it," and I have never regretted letting it pass without a word of reproof. I shall only recall them to take a view of their comic side. In a quotation from Tennyson in the May number of THE CLAY-WORKER it reads—

"All the soul is rapt in suspension
With the fever of invention."

I presume a great many think "fever" a better word than fervor in this connection, but the poet did not think so or he would have used it. It would be in harmony with that foolish phrase, "Genius is next to madness," or "Poverty is the mother of invention." Perhaps the author of the latter considered lunacy its daddy. One of the first mistakes a printer made

for me was in setting up a line in an ad. which stated that my "machine would make brick that could be set directly in the hake from four to six high." He thought he would correct my careless writing and made the line to read "from four to six feet high." Of course, every brickmaker who read it said, "What a lie!"

When you are writing or speaking upon any practical or scientific subject don't use any metaphor; speak the "truth, the whole truth, and nothing but the truth." This lesson was impressed on my mind by a blunder the printers made in an address made by the writer before the Michigan Drainage Association many years ago at Flint, Mich., on the subject "Underdrainage in Harmony with Nature." I said, "When I was a boy I was taught that there are three kingdoms in nature—earth, air and water—but her kingdom is but one, and earth, air and water are her ministers." A pretty metaphor, I thought, taken from the British government. Judge of my indignation when I read in print, "Earth, air and water are her teamsters."

One of my customers who had failed after mortgaging his property to his brother-in-law (look out for the brother-in-law), wrote me that he was an honest man and would pay all his debts, but had been "shamefully slandered and had every vulgar epitaph flung at him." Whoever did it should have thrown the whole tombstone, for the man never paid his debts.

The mistakes of others are amusing to us, but can we laugh at our own? And are we not disposed to give a sharp retort to any one who criticises us? I confess that I am. I was speaking in praise of a clerical friend who had given up his charge for one offering a better salary, and I offered as a reason for his doing so the opinion that he had been overworked by his many church appointments and funerals.

"Well," replied the one who had succeeded him, "I have the same work to do, but I did not come right out of a seminary to my work. I have had some years of experience." I answered, "Mr. — did come right out of a cemetery." At least that is what he said I had said, with much laughter at my blunder, and I am inclined to think I did say so, for so many preached as though they had come "right out of a cemetery." We may smile at the mistakes of others and perhaps of our own, but can we make light of those misfortunes which our mistakes in business have brought upon us? If not we have not learned one of the first lessons of the fistic ring, "If knocked down, come up smiling."

TIFFANY.

A
AJAXA
X

WE MAKE THE BEST FIRE BRICK ON THE MARKET

For the Simple Reason That—

Our fire clay is the Best Fire Clay in the Middle West for the manufacture of fire brick for building kilns.

From actual test our AJAX fire brick has withstood a temperature of 3187 degrees without showing signs of even surface fusion. This heat temperature was an average taken from three pyrometers.

The AJAX has a minimum of expansion and contraction in heating and cooling.

The AJAX is a uniformly hard burned and full size brick.

CHICAGO RETORT & FIRE BRICK CO.

CHICAGO, ILL.

Phone, Randolph 3601.

General Offices, 837-839 Commercial National Bank Bldg.

A
J
AJAX
X

Mention THE CLAY-WORKER.

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE.

Brick cars and one brick machine; good as new. Cheap.

S. LEBAW,
Bellaire, Ohio.
11 1 cm

WANTED.

Good shader for shale stiff mud face brick plant. Also good setter.

THE ALLIANCE BRICK CO.,
Alliance, Ohio.
11 1 d

WANTED — Superintendent for repressed stiff mud face brick factory. located in Pennsylvania; must have unquestionable references. Address

BOX 11, O.,
Care Clay-Worker.
11 1 d

FOR SALE—Two Eagle represses. one

Victor repress, one Richardson repress. All in first-class condition; 56 rack cars, 24-inch track gauge, practically new. Address

OHIO CERAMIC ENGINEERING CO.,
Cleveland, Ohio.
11 1 L

WANTED—Superintendent for plant making 40,000 brick per day. This will require a man capable of taking entire charge of plant and superintending enlargements and additions contemplated. Address

BOX 11, Illinois.
Care Clay-Worker.
11 1 d

WANTED.

Position as superintendent of fire, face or paving brick plant. Twenty years of practical experience in every detail along these lines. West or Southwest preferred; highest references Address

BOX 11, H. T.,
Care Clay-Worker.
11 1 c

FOR SALE.

Brick plant; shale clay; 30,000 capacity; on paved street in city of 30,000. Local demand for practically entire output. Owner has other business and wants to dispose of this. A rare chance to get a good paying plant located just right. Address

BOX D 21,
Care The Clay-Worker.
11 2 L

WANTED.

Position by a practical clay man as superintendent or head burner of paving, face or common brick plant. Thoroughly understand every detail from clay bank to loading finished product. Can construct and remodel plant. Will run a plant successfully. All references. Address

BOX 11, Edward,
Care Clay-Worker.
11 1 c

FOR RENT.

Fully equipped common brick plant, 25 miles from Chicago. Address

BOX 11, F. W.,
Care Clay-Worker.
11 1 d

WANTED—Good condition. one horizontal machine for small tile and brick; also vertical machine for large tile. Address

BOX 11, C. B. J.,
Care Clay-Worker.
11 1 d

FOR SALE.

One 9-foot dry pan, iron frame.

One revolving screen.

T. B. TOWNSEND BRICK AND CONTRACTING CO.,

Zanesville, Ohio.
10 tf d

FOR SALE — Four-mold dry press (standard make), dry pan, elevator, screen and transmission. Practically as good as new. Bargain.

W. KUTSCHE,
Denver, Colo.
11 1 c

FOR SALE—One tile and brick machine, Freese & Co. make; has been used eighteen months; one 60 h. p. slide-valve Atlas engine. Will sell cheap.

PORTLAND DRAIN TILE CO.,
Portland, Ind.
11 3 c

WANTED—Position as manager or superintendent of paving; pressed or building brick plant. Have had 25 years of practical experience. References. Address

BOX 11, J. A. F.,
Care Clay-Worker.
11 1 c

FOR SALE—Brick yard in Ohio; good railroad facilities; 30 acres shale; capacity 40,000. Practical man with \$4,000 can borrow balance from local bank on long time, or will trade for farm or city property. Address

ATTORNEY HOPWOOD,
Kenton, Ohio.
11 tf d

WANTED—An active young man who understands machinery and can handle men to take charge of the manufacturing end of a plant making paving brick and dry pressed brick. Give references. State experience and salary expected. Address

BOX 11, Alton,
Care Clay-Worker.
11 1 d

FOR SALE—For \$10,000, complete brick plant, consisting of No. 2 Giant machine, Frost pan, Success cut-off, 125 h. p. Corliss engine, two boilers. Eagle repress, Reid's elevating car system and 22,000 capacity dry shed. Brick office, boarding house, 140-foot well, finest steam pump, abundance of shale. Complete; perfect running condition. Large Oklahoma town; three railroads; close to big markets. A snap, as present value is \$25,000. Address

BOX 11, J. D.,
Care Clay-Worker.
11 1 2p

FOR SALE.

Paving brick factory in operation; well located. For particulars address

BOX 11, City.
Care Clay-Worker.
11 2 d

FOR SALE—At \$400.00 a No. 1 Giant brick machine, with offbearing belt and end cutter. Now running and making 4,500 brick per hour.

CHAMPION BRICK CO.,
Baltimore, Md.
11 2 d

WANTED—Position as superintendent or manager of brick or tile plant. South or lower Middle West preferred. Thirty years' experience. Best of references. Address

BOX 11, M.,
Care Clay-Worker.
11 1 1p

FOR SALE—Heavy clay. A first-class natural manufacturing site in Wisconsin. For drain or roofing tile, endless raw material. Near a good market and railroads. Investigate. Address

BOX 10, J. H.,
Care Clay-Worker.
10 1 d

FOR SALE.

A fine 40-acre factory site on the C. & N. W. R. R., underlaid by a good bed of fine clay and coal, in a locality that has a heavy demand for tile and brick. Price reasonable. Address

BOX 11, H. E.,
Care Clay-Worker.
11 1 d

WANTED.

In the rapidly growing city of Mena, Ark., a brick manufacturing plant. Good clay abundant and fuel cheap and convenient. Address for further information,

G. B. WOOD,
General Agent, K. C. S. Ry.,
Mena, Ark.
6 6 dm

FOR SALE.

Having changed to stiff clay process, we offer for sale the brick presses and other machinery formerly used in our Hydraulic Press Brick Plant at Canandaigua, N. Y.

NEW YORK PRESS BRICK CO.,
27 St. Paul Street,
Rochester, N. Y.
10 3 d

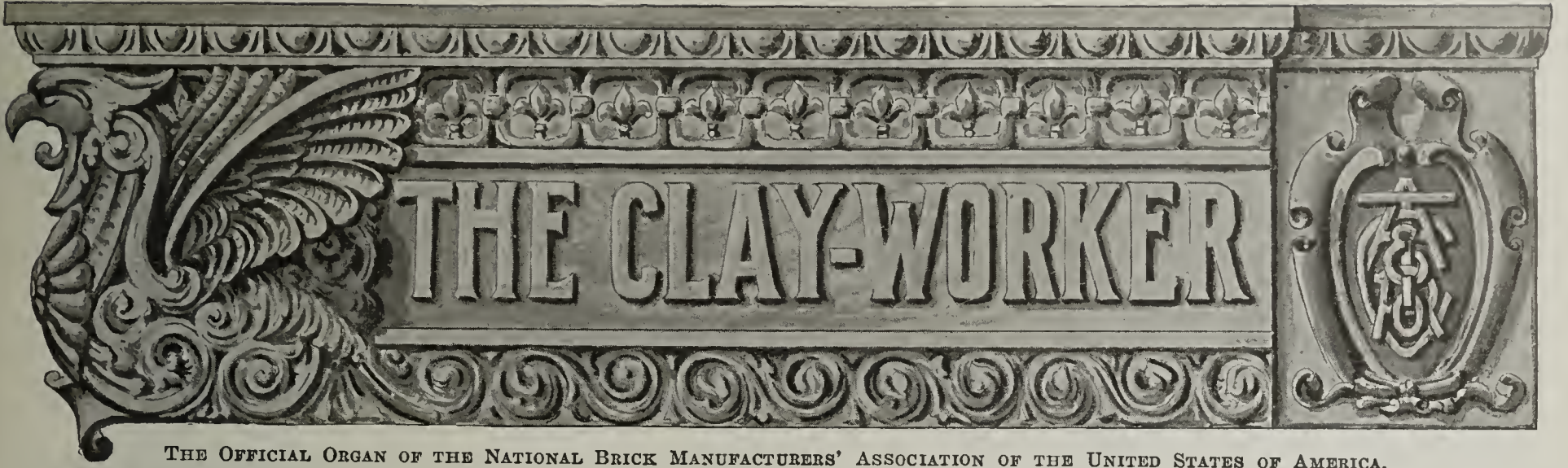
WANTED—A foreman or superintendent for common building brick yard. Location, southern New England. New Haven brick machine and steam dryer. Must be a first-class burner, thoroughly practical and experienced in taking full charge of men in all branches. Address

BOX 11, X.,
Care Clay-Worker.
11 1 d

FOR SALE.

One three-quarter housed, eight-foot wheel, 56 inches in width, extra heavy exhaust fan with water-cooled bearing next to fan, both bearings ring oiling. with wheel overhung; guaranteed to be in as good shape as when new. Was used only eight months. Capable of handling 70,000 cubic feet of air per minute at 160 r. p. m. Absolutely free from all rust. Price. \$150.00 f. o. b., Adel, Iowa. Fan cost \$375.00 when new. Of L. E. Rodgers manufacture.

DALLAS COUNTY BRICK AND TILE WORKS,
Adel, Iowa.
11 3 d



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LIX.

INDIANAPOLIS, IND., DECEMBER, 1910.

No. 6.

Written for THE CLAY-WORKER.

BRICK ARCHITECTURE IN HOLLAND.

Splendid Examples of the Substantial Dutch Homes, with Settings of Shrubs and Tidy Lawns.

FROM THE American viewpoint Holland, that brave little country whose people have resisted all attempts at invasion and for generations have held their soil against the furious assaults of the wild winter sea, is known

village paving and in her highways, and still more by her employment of brick and tile in architecture.

Doubtless the fact that Holland has practically no free stone has had all to do with her employment of brick in her house building, in her churches, and in nearly all her great state and municipal edifices. Her architects recognizing what may be done with this class of material, have excited the admiration of all Europe by the wonderful things they have accomplished architecturally. They have set the fashion for all others to follow in brick architecture.

We are pleased to give our readers a glimpse of some



A Typical Holland Suburban Residence.

as a nation of flower lovers. But while enthusiastic in their love for flowers, they do not lose sight of the practical, and Holland bulbs are sold all over the world. Holland is also distinguished perhaps even more than by her enormous production of bulbs by her extensive use of brick in city and

typical brick homes. Our first illustration is a rural or suburban residence, the Villa te Laren, which with the thatched roof and surrounding shrubbery forms a very pretty picture that tells of charming domestic life.

Among her beautiful structures in brick may be mentioned

the great cathedral at Harlem, the seminary at Hoeven, the Exchange and American hotel at Amsterdam, and many others. It is, however, the private dwellings, the city and country residences, that merit and receive special attention, combining as they do substantially, convenience and an indescribable picturesque beauty, and all in brick and tile, without any extraneous attempts at ornamentation. The readers of THE CLAY-WORKER will admire the attractive entrance of a dwelling at Bussum, which admirably illustrates how generously the Dutch architect employs this material. The roof and a small part of the pavement are tiled, while practically all the rest is of Holland brick.

It must be taken into account, however, that in Holland, owing to the low wages even of the most skillful brick masons, the cost of labor is small, and what is saved in the cost of labor may be put in the material of which the building is constructed. This brings home to us the fact that the cost of brick buildings lies chiefly in the cost of laying the brick, and not in the cost of the brick.

WHAT THE BUSINESS MEN SAY.

That every man answers every question and sees every condition from his own peculiar angle is strikingly displayed in a collection of letters received by American Industries in response to a widely circulated question asking for expression on business conditions and what would make for their improvement.

The answers are varied, colored and deeply influenced by whatever line of business the writer happens to be in. Nearly all agree that less political agitation would be a good thing, and, of course, those who get benefits from good tariff protection want freedom from tariff tinkering. Those in railway and railway supply lines naturally want to see a let-up on the attacks against railway corporations. Many who heretofore have been heard to speak out strongly against trusts are now beginning to openly express the opinion that it our anti-trust laws and stop some of the agitation. The iron and metal people naturally want to see would be a good thing to dispense with or amend a let-up on railway persecution and see the roads permitted to increase their freight rates a little, while the lumber people and many other shippers, on the other hand, think that a more economical administration of railway business and a lower freight rate would help things.

In short, every man is actuated more or less by his own particular business and what direct influence may seem to be in the way.

After all is said, however, it looks like there is really nothing serious the matter with industrial conditions except a little stubbornness and apprehension. A sort of hesitancy about going ahead full tilt for fear it is too early yet.

There are a few big guns in the financial and industrial world who should be able to speak with authority who have been giving voice to some pessimistic expressions recently and predicting that there will be many idle men walking the streets and that the railways and big industries will not be making any improvements or enlargements until there is a let-up on what they term the persecution of railroads and big corporations.

Some take this expression to heart and others take it merely as a whip or bluff to force people into being more considerate. It is probably some of both, and it is probable that unless there is some let-up in the wrangles between the railways and the shippers, the government and corporations,

there will continue to be a drag on industrial progress.

Present indications, however, point toward a cessation of hostilities of this kind and toward people turning to and getting busy in the various industrial lines. There will still be some wrangling over railway matters. It looked for a while like we had that about all settled, and now again it looks like the little wrangling and bickering that is to take place this winter will clear the atmosphere and settle, with some permanency, questions pertaining to railway rates, and that, then both the railroads and the people will get busy.

As to the prosecution of big trusts and corporations, we must confess that efforts so far have been very disappointing and have caused more agitation than real benefit. The oil trust cases were a flat failure, but now the government prose-



An Attractive Residence at Bussum, Holland.

cution is turning its searchlight on the sugar trust. Whether or not it will be a repetition of the oil trust case remains to be seen. Sometimes we think that there may develop out of it all enough disappointment from the result of efforts of this kind to encourage some one in making a proposition to dispense with or greatly amend our anti-trust laws.

But whatever is done, while it may check and interfere more or less with industry on the one hand and stimulate it on the other, the indications are there will be plenty of good business and a fair share of prosperity next year, regardless of these things. They are simply handicaps on the road which may cause a little stumbling and halting, but cannot retard progress and industry. We will go forward, and next year will be better than the past.

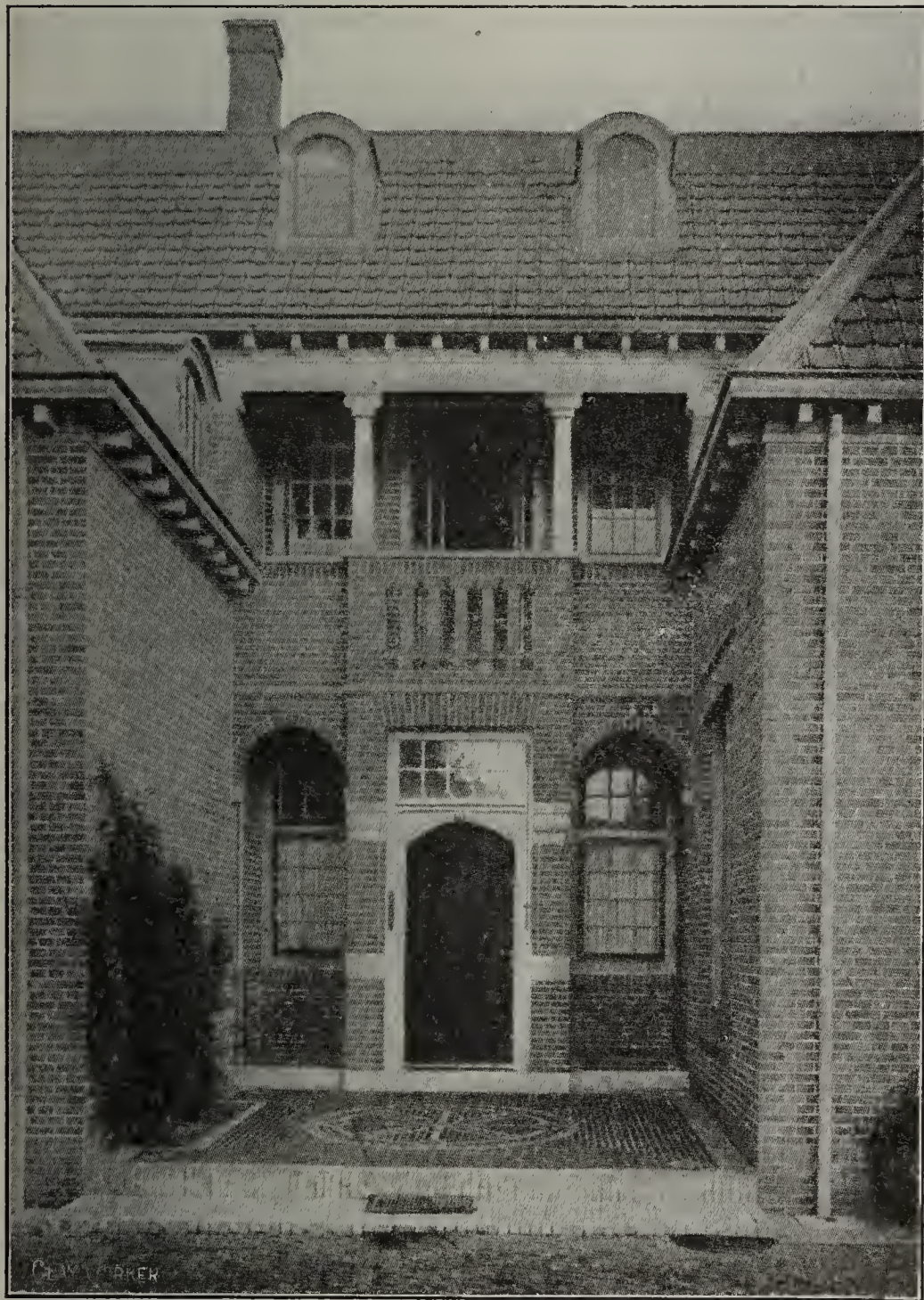
Reprint from The Brickbuilder.

BURNT CLAY'S SHARE IN THE REBUILDING OF SAN FRANCISCO.

BY WILLIAM C. HAYS.

COMMERCIAL BUILDINGS.

THE KERNEL of it all here in San Francisco is that the optimist made good. It was on the second day of the great fire; those not busy in moving household or office effects to safe places were gathered in groups watch-



Rear Entrance to Residence at Bussum.

ing. We stood on Nob Hill during the destruction of the Hopkins Institute of Art, and the gutting of the nearly completed Fairmont Hotel. Below, the south slope, out Sutter and Bush streets, was a seething hell; south and eastward was ruin. Even then, in the hour of destruction, he was there—the “coast” type—the practical optimist. Shaking both fists at the flames, he declaimed: “I tell you, San Francisco will rise from these ruins like a Phoenix.” And the man next him, a scoffer, echoed, “Nix!”

But in two days the mayor, a practical—if impetuous—optimist, sent telegrams to city executives everywhere: “Send us architects; not food nor clothes—architects.” Then

another loyal son and seer paraphrased Kipling and published—

THE DAMNDEST FINEST RUINS.*

Put me somewhere west of East street, where there's nothin' left but dust,
Where the lads are all a-bustlin' and where everything's gone bust,
Where the buildin's that are standin' sort of blink and blindly stare

At the damndest finest ruins ever gazed on anywhere.

Bully ruins—bricks and wall—through the night I've heard you call,

Sort of sorry for each other 'cause you had to burn and fall,
From the Ferries to Van Ness you're a God-for-saken mess,
But the damndest finest ruins—nothin' more or nothin' less.

The strangers who come rubberin' and a-huntin' souvenirs,

The fools, they try to tell us it will take a million years

Before we can get started, so why don't we come to live

And build our homes and factories upon land they've got to give.

“Got to give!” Why, on my soul, I would rather bore a hole

And live right in the ashes than even move to Oakland's mole;

If they'd all give me my pick of their buildin's proud and slick,

In the damndest finest ruins still I'd rather be a brick!

*Copyright, 1906, Lawrence Harris.

Yes, it was the practical optimist who wrought the miracle of reconstruction; he started the wave of enthusiasm; he compiled figures to show that the earthquake wasn't really so destructive, and that fires have occurred elsewhere. Scarcely waiting to collect his insurance, the optimist backed up his confidence. He rented temporary quarters and wired orders everywhere for big stocks of new—and the best—goods. Then he sought outside capitalists who believed in the stability of San Francisco's business to outweigh the instability of soil in an earthquake zone. So again the city arose, almost, it seems in looking backward, over night, which four years ago lay leveled. Today it has more and better stores, banks, office buildings and great hotels than ever in its history.

Merely to take a cursory look over the reconstruction means traversing miles of streets, and then some of the best among the smaller buildings are apt to be missed, since there are many good things tucked away in hidden corners. Over

an area of several square miles the change is complete but for topography and here and there a familiar feature that has been restored.

Architecturally and structurally, it is true, the average new building is far better than the average old one which it replaces. But nevertheless one feels in the new streets an intangible loss; it is the colorful quality of the old town that, inevitably though unfortunately, is no more. Happily in the midst of their nouveaux neighbors still stand Page Brown's fine Crocker building, the low Montgomery block and its surrounding buildings, the old Parrott building—of granite brought ready-hewn from China way back in the early days—the Mills building and the Mint; all these unchanged, digni-

fied, aloof. Many other "before-the-fire" buildings are restored, too, but they are mostly of more recent date than these.

At costs varying greatly these landmarks have been saved of the city that was, although much stone facing was badly spalled by the heat, and some terra cotta was shaken and sheared. I am told, by the way, that a total outlay of only \$2,000 restored all terra cotta on the Crocker, Union Trust and Hale Brothers Department Store buildings, though these are tall structures and were exposed to the severest of earthquake and fire in the great test.

It is worth while to note the immensely important part played by bricks, terra cotta and tiles in the construction of the entirely new buildings, as well as in restoration of the old. As to internal structure, the local manufacturers of clay products do not push the making of floor and partition blocks, the plants generally being run to their full capacity in making exterior terra cotta, so that this great field has in most cases been left uncontested to other structural materials. However, the partitions and floors in some of the principal new hotels, stores and office buildings are of hollow blocks—always, of course, tied carefully with clips, for security against vibration.

The former business section was a city of cast-iron frontage; the new shows block after block of brick and terra cotta, contrasted here and there with equally interesting and imposing structures of cut stone. In the shopping districts the lower stories are frankly show windows, and of such size as to remind one of the old Elizabethan rhyme anent a great house in Derbyshire—

"Hardwick Hall,
More glass than wall,"

and to suggest the paraphrase—

"Windows tall,
All glass, no wall."

Among these brick, terra cotta and tile buildings there is a broad variety in composition; some are clever counterfeits of cut stone, as to form, finish and color; a few are orgies of exaggeration in plastic quality of clay; many are sane and appropriate; a few are beautiful. They vary in color from the simple match of terra cotta and brick, ranging through grays, buffs and reds, to the sprightliness of old decorated majolica. There are examples of standard surface, matt glass and lustrous enamel. Some of the ornament has been modeled charmingly by the hands of artists, though much of it is crude and ill studied—in mitigation of which it may be argued that the earliest buildings were rushed through by owners, who would not allow their sometimes well-meaning architects time for proper study—which undoubtedly was true.

Probably the first important work chronologically in the business district was the Sherman Clay building, eight stories high, of steel frame—of course for earthquake resistance, as are all the best new things—and of cream-colored matt glaze terra cotta exterior. This building was a pioneer in the complete elimination of apparent means of support through the lower story, the columns all being back behind the continuous area of plate glass. It is entirely occupied by a piano and music house, and the owners have been followed by their three strongest competitors, who likewise have all provided themselves with handsome quarters and shown their preferment for matt glazed terra cotta facades.

The department stores moved back into the down-town district almost simultaneously, nearly all occupying imposing new structures, second to but few in the country—almost all of them being, like the piano dealers', lustrous enamel or matt glaze terra cotta. In the "White House," designed by Albert Pissis, there has been used structural as well as orna-

mental terra cotta throughout, and it is a plant of the highest class.

When W. & J. Sloane announced plans for an eight-story building to cover a big lot on Sutter street they, too, started a series of matt and enamel terra cotta or brick buildings, for most of the other furniture and carpet houses promptly followed suit and put their inflammable stocks within terra cotta and brick walls.

It is not surprising, then, to find solid blocks of terra cotta buildings, for the instances mentioned are not exceptional, but typical of the retail shopping streets. In connection with several of them color has been introduced with varying degrees of success.

The Royal Insurance Company commissioned Howells & Stokes to do a tall building for them and, bless them, sent the only Sayre & Fisher bricks out here to remind us quondam Easterners of home. This building, however, has already been published, and so is not given the space here which its importance would warrant. It is not a little reminiscent of the company's New York building on William street. In that immediate neighborhood, too, is another echo of lower New York in Meyers & Ward's building for the rich and influential Alaska Commercial Company. The plentiful use of ornament forms symbolic of the company's connection with the Alaskan and Behring waters is a commendable departure; one is accustomed to the cables, shells and tridents, but the walrus heads are equally suitable and a relief from the omnipresent lion head of convention. Howard & Galloway meanwhile were doing the pressed brick and terra cotta Security, Adam Grant and Levi Strauss buildings. Later, by perhaps two years, Lewis Hobart began near this group his Newhall building, of which more is to be said.

In the center of things Bliss & Faville were doing that straightforward solution of the office building, the Balboa.

It may be surprising to learn that in almost every instance these new buildings are higher and bigger than ever. We had all learned that the tall buildings having an elastic, articulated skeleton, anchored to deep, heavy foundations, is the safest and most sane type with which to meet the earthquake hazard. But if these others were big undertakings, they were outdone in size by the Phelan building, designed by Wm. Curlett & Son; its walls are of cream-colored glazed terra cotta above the cast-iron and glass of the two lower stories. This building fills the largest of the many "gore" lots—like New York's "Flatiron"—resulting from the acute intersections of Market street.

Taking these buildings as a general class—and the criticism may be applied equally to the stores and office buildings—the material is candidly burnt clay and unimpeachable, but there has been a too common failing to appreciate and apply the possibilities in form of terra cotta as a plastic material. The plain classic pilaster, in its purest cut stone types, appears again and again; while broad surface-ornament forms, so inviting to the modeler and so suited to the mold, one regrets to find so seldom. In Mr. Lansburgh's building for Elkan Gunst the reverse is true; the forms are less stone-like, but—there is a "but"—the material is so perfect an imitation of granite that the Northwestern Terra Cotta Company might almost be suspected of ownership in a quarry.

The Metropolitan Life Building! It has already been published, otherwise it should be given much space. Michael Le Brun knew the splendid site, for he had come out from New York just to "size things up" there on Nob Hill; and few buildings are so perfectly suited to their places. It is a stately mass on a commanding little hill, placed above a terrace wall and with a bit of grass about it; in gleaming light glazed terra cotta, with frieze of deep blue and golden brown, it is a fitting and impressive home for the Pacific coast branch of a colossal insurance institution.

One turns with pleasure to take fuller notice of the Newhall building, now nearing completion from Mr. Hobart's plans.

This strikes us as being very nearly "it" as an architectural interpretation of the moderately tall, steel-framed building. The two stories form a base of cut stone; the shaft is red brick of fine color and wall texture, with narrow piers and broad grouped windows, of which the spandrels and the outlined jambs are cream-colored matt glaze terra cotta. The reveals are ornamented and deep, to make the already dominant verticals the more insistent—and the composition has a crowning motive that is altogether satisfying.

This building carries some exceptionally well modeled ornament. Unfortunately some of the best pieces of it—the "bambini" panels—are placed so high in the composition that their charm does not count as might be wished. Perhaps one must go back to Cope & Stewardson's "Harrison building" in Philadelphia if he would find a parallel to the Della Robbia-like sentiment of this work. It is plain that more than a passing interest was here; that between architect and sculptor there existed a perfect rapport; that behind these two there has been responsive, intelligent co-operation on the part of a maker anxious to produce something of real distinction. Such was the case here, indeed. But the surprising fact is that in this concert of architect, sculptor and practical terra cotta maker the sculptor is the same man who seventeen years ago modeled the lovely little figures of that earlier masterpiece—on the other side of the continent; and it was the same man, here representing a local terra cotta manufacturer, whose painstaking care then furthered the work of that sculptor and John Stewardson at the Perth-Amboy works.

One cannot think of these men without acknowledgment of their contribution to the community—the introduction of successful coast-made polychrome terra cotta, on an adequate commercial basis. Their valuable experience in a special field shortened the experimental period and put at the hand of the architectural designer a material peculiarly adapted to local conditions.

To California the love of color is a natural heritage, bequeathed by Spanish and Mexican, Japanese, Chinese and Hawaiian influences. The Iberian tradition up the coast in California is of gleaming white and glaring primaries. From the Orient and the Islands came over seas such tints and tone gradings as white man never comprehended before Whistler. The land itself, too, is colorful, while the sunshine, cool shadow and clear skies seem to cry for color everywhere. The use of color, then, is destined to become more pronounced and general. Already a beginning has been made, and doubtless succeeding assays in this field will be increasingly successful.

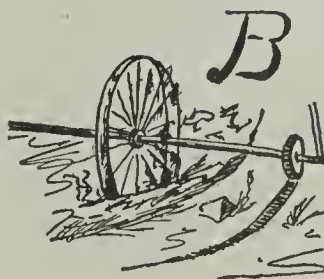
A BRICK THAT FLOATS.

In building cold storage warehouses, some parts of breweries, chemical laboratories and many other buildings where a low temperature must be maintained or where absolute freedom from dampness is necessary, the walls have to be insulated, and while the ordinary materials—brick, stone or concrete—are used for structural purposes, there has also to be a lining of cork, hair felt, flax fibre, charcoal, sawdust or other such more or less imperfect insulation. Most of these materials disintegrate, rot, become foul and last but a little while.

The National Fireproofing Company has long experimented with insulations and has just put upon the market an insulating lining brick that is next to perfect if not the ideally perfect material we have all been hoping for. It is a brick to all intents, but one so waterproofed and so burned that 45 per cent. of the volume is confined air and its specific gravity is 0.90 and its ultimate strength in compression 750 pounds per square inch. It floats, it absorbs no moisture, it is everlasting, can be used and put into the wall in the one operation of building, for it can carry a very considerable load. It is a notable and long-needed contribution to the building art. The National Company calls it terra cotta cork or insulating building blocks.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



BRICK MANUFACTURERS, dealers and supply men in this territory are closing the year 1910 in a very satisfactory frame of mind. From all accounts the totals for the twelve months will show that this year has eclipsed all former ones in the volume of business transacted. It is

certainly a fact that the amount of building has been greater than heretofore. It is expected that official totals for the year will show a new record for Cleveland, in the building line at least. It will total somewhere in the neighborhood of \$13,000,000 for permits, but the actual amount spent will fall not far short of a round \$20,000,000. This is exclusive of the cities of East Cleveland and Lakewood, which are about 15,000 each, and which lie close to Cleveland's borders east and west.

The year has seen some notable new buildings erected in Cleveland. The headquarters of the Brotherhood of Locomotive Engineers, a fourteen-story, white tile structure, costing \$1,250,000, was completed. A new twelve-story building, costing about \$600,000. for the City Investment Company on Euclid avenue near East Ninth street, is now being roofed. It is white terra cotta and gray brick. The new twelve-story white tile building for the Cleveland Athletic Club is now up to the tenth story and will be completed shortly. The new \$1,000,000 annex to the Rockefeller building, sixteen stories high and built of chocolate-colored brick, has been finished this fall and is now being occupied. These four skyscrapers are among the finest of the city's new and modern structures and are fine specimens of the clayworkers' art. In addition to these there have been a host of structures ranging all the way from \$25,000 to \$200,000 which have gone up all over the city, into which brick entered very largely.

The new year promises to see even greater expansion in building in Cleveland, and some fancy terra cotta and brick orders are to be given out. E. M. Statler is having plans drawn for a \$2,500,000 hotel building at Euclid avenue and East Twelfth street. It has been fully financed by Cleveland banks and all leases have been signed. Work starts as soon as the weather will permit.

The Y. M. C. A. is to expend \$600,000 for three new buildings, of which about \$400,000 will be for a new eight-story central building of red brick and terra cotta. A West Side and an East Side branch will each cost about \$100,000. The Commercial Building Company is to spend \$400,000 for a six-story white terra cotta building on Euclid avenue near East Ninth street, work to begin in the spring.

Land was purchased on December 5 by the Brotherhood of Railroad Firemen and Enginemen at a cost of \$100,000 on Superior avenue diagonally from the Rockefeller building and in the early spring a fine new fireproof office building is to be erected. It is planned to put in foundations and superstructural work for a sixteen-story building, but to erect only six stories at this time, the remainder to be built as necessity demands. The expenditure will reach at least \$500,000, it is estimated.

On December 23 contracts are to be let for the foundations of the new \$2,600,000 city hall for Cleveland. The foundations will be of brick and will cost in the neighborhood of \$150,000. Other contracts will be let next year as the work progresses. The city will spend \$250,000, the proceeds of a recent bond sale, on a new tuberculosis sanitarium at the city's two-thousand-acre farm. The buildings will be of hollow brick, faced with stucco.

Two newspapers—The Leader and The Press—are both planning new buildings for next year. The Leader proposes

to erect a sixteen-story structure at the southeast corner of Superior avenue and East Sixth street. It will cost at least \$1,000,000. The Press has purchased a site at Rockwell avenue and East Ninth street, and the Scripps-McRae Association, which owns the paper, is planning a new plant for next year. The building will be six or eight stories in height and will cost at least \$300,000. In addition to these structures already announced there are a number of smaller projects which are being worked out in the offices of the architects.

In Cleveland the amount of paving brick used in a year runs into a considerable amount and helps to keep the dozen or so paving brick establishments in business. The year just closing has been unusually successful one in that line, for the county has done an immense amount of work. In all 45.08 miles of rural roads were paved in the vicinity of Cleveland. These improvements were made in eight different parts of Cuyahoga county. Already plans are under way for paving about thirty miles of roadways next season. The thing has spread, too, and Lake county, lying to the east, and Summit county to the south, are both taking up the work and carrying along the pavements, which have been brought from the heart of Cleveland to the county borders. There is now a total of 274.45 miles of pavement in the county, of which 199 miles are of vitrified brick on a concrete base. The cost of the paved roads has already reached the enormous sum of \$5,826,-



Clay Shed of Clayburn Company.

619.70, but the county officials feel well repaid, and say that three times that amount has been added to the value of property which has been affected.

Apropos of Cleveland brick pavements and Cuyahoga county's brick roads, A. B. Lea, now director of public service for Cleveland and former county engineer, who had much to do with the improving of the brick roads in this vicinity, was one of the speakers at the American Good Roads Congress held at Indianapolis early this month. Mr. Lea has many things to look after now, but his interest in brick pavements never wanes and he is always ready to talk about them, no matter how busy he is.

A contract for a \$150,000 power block in which brick will be used extensively was let during the past month by the Perry Payne estate to the Crowell & Sherman Company. The building will be erected on Oregon avenue, near East Ninth street, and will be seven stories high, 90 by 135 feet in size. It was designed by Wilbur Watson, engineer, and is designed for heavy power plants. A warm red shale brick will be used for the outer walls. A big power plant, costing \$250,000, has been slated for the Cleveland Illuminating Company on the lake front at the foot of East Seventieth street. It is to be 270 feet square and 70 feet high. All the walls are to be of brick. P. L. Cobb and C. S. Izant, engineer and architect, respectively, designed the building.

Another link in Cleveland's \$5,000,000 intercepting sewer was finished during the past month when two tunnels which

workmen have been driving through the clay and rock met with a variation of only two inches. Hydraulic shields are being used and the brick tunnel work is being followed along as rapidly as excavation takes place.

Three building permits of \$100,000 each were taken out the first week in December, despite the fact that the building season is almost closed. One is for a ten-story addition to the plant of the Cleveland Telephone Company, on Champlain avenue; another for an office and store building on Prospect avenue, Southeast, and the third for an eight-story addition to the New Amsterdam family hotel. All are to have their walls composed of pressed shale brick.

The Toronto Fire Clay Company, of Toronto, Ohio, has been incorporated under the laws of Ohio with a capitalization of \$25,000 by J. B. Nicholson and others.

James C. Bartlett, prominent brick manufacturer in this city for many years, died here during the past month. In his early days Mr. Bartlett had an opportunity of being a partner with John D. Rockefeller, but concluded that he would be of more service making good brick. He was eighty-three years of age.

During the past month a conference was held in Cleveland between Special Examiner Vassart, of the Interstate Commerce Commission, and local face brick manufacturers and dealers for the purpose of taking testimony in pending cases in which the brickmakers charge the railroads with charging excessive rates. Further conferences will take place through-



Entrance to Fire Clay Mine.

out the country before the Interstate Commerce Commission will be prepared to study the case in detail. BUCKEYE.

NOVEL METHOD OF DEMOLISHING BRICK SMOKE-STACK.

Fire was the means employed to demolish an old 210-foot smokestack at Thirty-second and Walnut streets, Philadelphia. When the final crash came and the forty-five-year-old shaft crumbled to earth in a heap the sight well repaid the hundreds who journeyed to the shop to witness the razing.

The Pennsylvania Railroad Company recently purchased the site to enlarge their West Philadelphia freight yards and desired the site cleared quickly. John R. King, foreman for Armstrong & Latta, contractors, examined the stack and its surroundings and reported that the shaft could be "burned down," and several weeks ago began tearing down the small buildings to the east of the stack, and after this work was completed bricks were removed from the eastern base of the big chimney and replaced by wooden shorings until almost the entire weight of the stack was borne up by the timber. Bricks on the west side of the base were left in position. This arrangement, it was calculated, would insure the chimney falling in a heap, practically, where it stood. Several gallons of oil were poured on the wooden supports and a match applied. Inside of an hour the stack fell and there, in one massive pile, lay the material which had served the wheels of industry for forty-two years.

Written for THE CLAY-WORKER.

THE FOREMOST BRICK MANUFACTURING PLANT IN BRITISH COLUMBIA.

Clayburn Company, Ltd., Clayburn, B. C.

SOME FORTY MILES east of Vancouver, in British Columbia, close to Mission on the Fraser river, are located the clay mines and plant of the Clayburn Company, Ltd. Organized five years ago under the name of the Vancouver Fireclay Company, the company was reorganized last fall under the name of the Clayburn Company, Ltd. Mr. J. B. Millar, who was formerly connected with the Don Valley Brick Works, of Toronto, became associated with the new company; in fact he was the moving spirit in the reorganiza-



Clay Train Entering Shed.



Glimpse of Square Kilns.

the fire-clay mine. Here the fire clay is mined from two distinct veins, separated by a vein of coal from four to six feet. Each vein of fire clay is some eight feet in thickness. Large bunkers have been erected to take care of the mined products, and with one gang of miners the mines are kept in constant working order and supply all the clay which the brick plant can use.

After a thorough examination of the mines, we again boarded the clay train, which soon started on its return trip to the factory, where we arrived at noon. After a delightful lunch at Mr. Millar's residence, where Miss Millar acted as hostess in the absence of Mrs. Millar, who was visiting friends in Toronto, the brick works were inspected. The clay cars, as they come from the mines, are run on a large trestle and dumped in front of the dry pans. Three large dry pans are grinding the material. One stiff-mud machine and two dry presses are used for the production of the brick. The dry pressed brick are set direct in the kiln, while the stiff-mud brick are run into a twelve-track dryer. There are six round down-draft kilns, each thirty feet in diameter, and three square kilns, of which two were erected by Mr. Millar last winter. On account of the large demand for a better grade of common brick, the company was making also some wire-cut brick, which were burnt in open clamp kilns. Mr. Millar explained in detail the working of the plant, and we were very much impressed with the excellent product which he is manufacturing. There are about one hundred men employed, and the



A Section of the Main Plant.

works has been running full time all the year round. The company has large financial backing and is contemplating large improvements in the near future. They are figuring on installing a large sewer pipe press and kilns for burning the same, and also the building of a continuous kiln for burning the better grade of common brick which they are making.

The output of the plant consists of fire brick of excellent quality, dry pressed brick in various colors, wire-cut face brick, paving brick fire clay tiles, coke oven tiles and other clay specialties. On account of the large demand for brick in British Columbia the company is shipping all its product as fast as burned, and they do not have a large stock on hand. Their shipping facilities are very good, as the company owns its connecting track of one mile in length with the Canadian Pacific and the British Columbia Electric Company.

A banquet was given on the night of November 22 at the Hotel Savoy, Seattle, Wash., in honor of E. D. Gates, for three years past manager of the terra cotta department of the Denny-Renton Clay and Coal Company, and retiring president of the Washington State Association of Clayworkers. Mr. Gates is to leave shortly for New York, where he will take an important position with one of the largest terra cotta concerns in the United States. D. F. Power acted as toastmaster at the banquet, which was attended by a large number of the Seattle brick men.

tion. Under the guidance of the genial manager, Mr. Millar, THE CLAY-WORKER's scribe was shown the plant and mines. The mines of this company are located in what is known as the Sumas District. The company owns about 800 acres of land. They operate a narrow-gauge railroad about six miles in length to haul their clay, coal and wood to the works. The clay train was just ready to start out when we arrived, and Mr. Millar suggested we take the trip at once. Climbing on a 4 per cent. grade over several very high trestles, we first passed the steam shovel, where the common clay is loaded on cars. Several miles further up the road are the plastic clay banks, from which most of the pressed brick are made. All clay is found in horizontal veins, with a thickness varying from eight to twenty feet. The last stop on the railroad was



An Old Pottery Kiln.—In Delitzsh, Province of Saxony, has been discovered a pottery kiln which is considered the remaining part of a pottery which must have been in operation more than five hundred years ago. The claybank was found at a depth of six feet on a truck farm. Some sixty pieces of pottery have also been found. The arrangement of the kiln proper was with straight flues, and evidently the kiln must have been in good working order, as the pottery is in good condition and hard burnt.—Tonind. Z. No. 109, 1910.

Utilization of Heat from Continuous Kilns for Drying Brick.—The best arrangement for brick drying in connection with continuous kiln is the one in which the drying racks are above the kiln crown level. The drying can be done also on the outside of the kiln, and a three-story building is the most profitable one for proper drying. The racks are from seven



FIG. N° 1

to eight feet high, and the brick will dry in about ten days. The racks will have a capacity of one million brick per season. The room below the racks is used for storing green brick for burning in winter time. As long as the kiln is in full operation freezing in winter time will not take place inside the kiln building. The racks are arranged in three sections, each having a width of 15 feet, and having an alley of $4\frac{1}{2}$ feet. Figure 1 will give a good idea of the arrangement of the building. Should it be found that this style of drying is too expensive of installation, a two-story building, as shown in Figure 2, will have the same results with lesser capacity.—Tonind. Z. No. 107, 1910.

Mechanical Clay Digging for the Brick Industry.—On account of the many difficulties which have arisen in the last few years the mechanical digging of clay for brickyards has become a necessity. The dredge type is mostly in use in Germany, which are built either for dry dredging or wet dredging. In many brickyards the wet dredging is extensively used, as more good brick clays are found in swamps and lowlands than in dryer localities. The bucket dredge is mostly used, while the steam shovel and other dredging apparatus are not often operated. It has been found that mechanical digging can be carried on in every kind of weather and conditions, and the output is far in excess of hand digging. In a comparison test

between mechanical and hand digging it was found that the cost of digging 100 cubic yards per day for a period of 200 days by mechanical means was 3 cents per yard, while the hand digging for a similar period and amount was 7 cents per yard.—Tonwarenfabrikant No. 19, 1910.

Sewer Pipe Glaze.—In some factories sewer pipe are glazed with salt at a temperature between cones 8 and 9. The insides of the sewer pipe are also glazed with a slip glaze. It takes considerable experimenting in order to obtain a slip glaze which will work well with the salt glazing. The slip clays which are used for such purposes will either melt at too high a temperature or melt at a low temperature, in which case the glaze will be affected by the salt and get a yellow-green color, which can not be changed even by reducing temperature and burning. This dirty color of the glaze can be traced to the formation of a sodium-potash-sulphur-iron combination. In order to obtain the right glaze experiments should be made with a large variety of low fusible slip clays, and the glaze which changes the least under the influence of the salt glazing should be used for the glazing of the inside of sewer pipes.—Deut. Topf. & Z. Z. Nos. 73-76, 1910.

The Brick Trade of Egypt.—The British Chamber of Commerce of Alexandria has just published the statistics in regard to the brick trade of Egypt. The total importation of brick into Egypt for the year 1909 was 16,597 Egyptian pounds (\$4.95). Besides these importations there are manufactured a large number of brick locally. The brick trade is divided

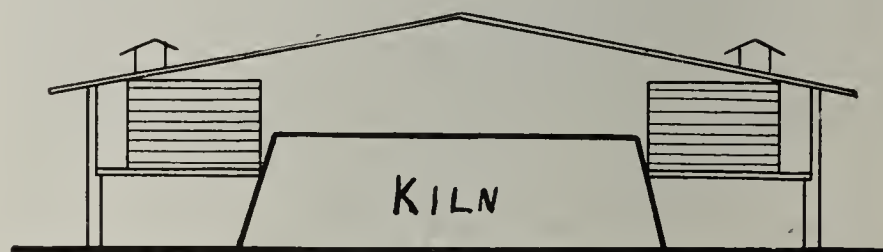


FIG. N° 2.

into two classes, the "frangi" and the "beladi" bricks. Frangi bricks are native-made brick of excellent qualities and used in all first-class buildings. Sometimes they are plastered over for face work, but the better bricks are used direct as face brick and are sold for about \$5.30 per thousand, delivered. At Cairo several firms are making machine brick, which are nearly entirely used for face brick, and bring from \$7.60 to \$10.25. The difference between beladi brick and frangi brick is that beladi brick are never burnt. They are poorly mixed and made in big forms and sun-dried. Beladi bricks are only used in the construction of dwellings for the natives.—Moniteur de la Ceramique No. 21, 1910.

Tunnel Dryer for Whiteware Potteries.—For the installation of a modern drying system for a whiteware pottery it is necessary to know the amount of ware which should be dried every twenty-four hours. Small quantities are the best dried on racks which have underneath the same a flue made of fire-brick or iron, in which the waste heat of the kilns is used. In order to have the heat also when the kilns are not cooling the racks are also provided with steam pipes, in which either the exhaust of the engine is used or otherwise live steam. The right ventilation of the room will materially help the drying. When large quantities of ware are to be dried the installation of a system of chambers which are provided with waste-heat flues and also steam pipes is the best method to be employed. These chambers are so arranged that the production of every day can be put into one or more chambers. When a chamber

is full of ware the heat is gradually applied, and the ware should be dried in from 12 to 24 hours without any cracking whatever. The system of tunnel dryer in use in brickyard can also be applied with great success. The ware is put on small cars, and these cars are put into the tunnel at the coolest end, and as the cars are gradually advanced the ware will be dried very regularly. The movement of ware through the tunnel is done without cracking or handling, and everywhere this system has proven a great success and saving over the old methods. The cost of operation is very small, and while the first cost is somewhat high, the saving will more than pay for such improvement.—Sprehsaal No. 39, 1910.

German Definition of Terra Cotta.—Under the name "terra cotta" is classified such clayware which has a porous body, and which can be of several colors. The pieces should be made mostly in plaster molds. The usual colors of terra cotta bodies are yellow, gray, red, or combinations of those colors. The outside coating can be made of several other colors. The outside surface of terra cotta is always somewhat rough, and are never glazed. Whenever a burnt clay piece is glazed it does not belong to the terra cotta class. The opinions are, however, somewhat different, and some terra cotta manufacturers advertise unglazed and glazed terra cotta. The French made also a direct distinction, as they call glazed terra cotta "fayence." The word "terra cotta" originated in the Italian language and means "burnt earth." There is building terra cotta, lawn and garden terra cotta and natural terra cotta. Each class has its own methods of manufacturing, and is burnt at different temperatures.—Keramische Rundschau No. 43, 1910.

Twenty-Five Years' Existence of the German Brickmakers' Association.—On the first of October last it was twenty-five years since the German Brickmakers' Association was brought into existence. The association was principally organized in order to carry out the insurance laws of the German empire relating to the employes. There were in the association on the first of October, 1910, 10,192 insured brickyards, with 260,092 insured employes. The total amount of money handled during the twenty-five-year period was 46,618,000 marks (\$10,404,500). Of this amount 5,050,000 marks are charged to the operating expenses of the association, which equals 12.1 per cent. of the total. (A mark is the equivalent of 23 cents.) Expenses for the investigation of accidents and lawyers' fees amounted to 2,178,000 marks, or 5.2 per cent. of the total. Operating capital, 230,000 marks. Expenses for the inspection of the yards, 628,000 marks. Assessments for the reserve fund, 4,470,000 marks, and the total amount paid out on accidents and other insurance was 29,062,000 marks. This amount was distributed as follows: Insurance paid to employes for accidents and injuries, 19,982,000 marks; for doctors and medicines, 494,000 marks; insurance paid to widows for husbands' deaths, 2,494,000 marks; settlements with widows, 165,000 marks; insurance paid to children for injured employes' deaths, 3,000,000 marks; insurance paid to relatives of the dead injured employes, 137,000 marks; funeral expenses, 175,000 marks; hospital and sanitarium expenses, 1,830,000 marks. In case the employe was injured and was taken care of permanently in hospital, insurance was paid to wives, 176,000 marks; to the children, 266,000 marks, and to the relatives, 7,000 marks; settlement with injured employes, 264,000 marks; assistance by confinements of employes' wives, 72,000 marks. The association employes 98 people in their office to conduct the business. The first president of the association was Friedrich Hoffman, of Berlin, inventor of the Hoffman kiln.—Deut. Topf. & Z. Z. No. 79, 1910.

It takes on different shapes and hues, but selfishness is always present in the human makeup in some form or other, and it is well that it is, for without it there would be no incentive to accomplishment.

Written for THE CLAY-WORKER.

WORKINGMEN'S COMPENSATION BILL.

BRICK MANUFACTURERS of Milwaukee and Wisconsin are taking a great deal of interest in the industrial insurance or workmen's compensation bill, which has been prepared by a special joint committee of the State Legislature. Four tentative measures have already been prepared and each has been discussed by manufacturers and other employers of labor and labor representatives at public hearings which have been held in Milwaukee and other cities.

The substance of the measure is, first, to leave the existing right of recovery in case of the employer's negligence and the absence of contributory negligence on the part of the injured man, removing, however, the existing defense of the assumption of risk of known hazards by the workmen and the immunity of the employer from results of negligence of a fellow servant.

It is then provided that upon the consent of both the employer and employe a new system shall apply to the effect that any employe injured while performing the duties growing out of and incidental to his employment shall, without regard to negligence, receive compensation from his employer as follows:

First. Free medical treatment within certain limits, medicine, etc.

Second. An indemnity, payable weekly, during the disability to the amount of 65 per cent. of his wages in case of total disability, and in case of partial disability 65 per cent. of the loss in wages.

If the injury caused the loss of a single eye, three-quarters of a year's earnings; if both eyes, four years' earnings, but not less than \$2,000; for the loss of one hand or foot, one and one-half years' wages, but not less than \$500 nor more than \$2,000; for the loss of both hands or both feet or of one hand and one foot, four years' wages, not less than \$2,000. If the injured employe, besides being wholly incapacitated, also requires the care of a nurse or attendant, he shall receive 100 per cent. of his wages while the condition lasts, not to exceed the death benefit hereafter mentioned.

In case the injury results in death in addition to disability benefits above mentioned there shall be paid to the persons wholly dependent upon him a sum equal to three years' earnings, not less than \$1,500 nor more than \$3,000, and if he leaves only persons partially dependent upon him, they are to receive a proportionate part of the above benefits. If he leaves no dependents his burial expenses, not to exceed \$100, are to be paid.

Disputes which may arise as to damages are required to be submitted in the first instance to a newly created industrial accident board to be appointed by the Governor. Their award is to be entered as a judgment of the Circuit Court. From that award either party may appeal to the circuit court of Dane county, in which the capital is located, upon which appeal only the questions of law resulting from facts found by the board and from the judgment of the circuit court any party may appeal to the Supreme Court.

The act further exempts from execution any compensation payable under the statute, and finally, the workman who elects to take the compensation prescribed by the new statute waives all right to damages under the pre-existing common law.

BURIED BY A COLLAPSED CONCRETE WALL.

The rear basement concrete wall of a new building being erected on Lenox avenue, Oneida, N. Y., collapsed suddenly a few days ago and buried an Italian laborer under it. He was quickly dug out and it was found that he had escaped serious injury. The wall had been erected the day before and had not had time to set when the supports were removed.—Exchange.

Burned Clay Versus Concrete Construction.

IF CONCRETE IS GOOD IT ISN'T CHEAP.
IF ITS CHEAP IT ISN'T GOOD.

ANOTHER CONCRETE FAILURE.

CONCRETE AS a structural material got another black eye at Cleveland, Ohio, during the past month, when a four-story reinforced building, just completed, came toppling down like a house of cards, killing four people and injuring eight others. Peculiarly enough, a brick wall, which had been left standing from a burned section and which was used as a support for one of the new walls, was about the only portion of the building left standing.

The accident happened on the evening of November 22, about 7:30, while the four persons killed were eating supper

safe proposition. It is agreed, however, that it will never replace good solid brick construction work as long as the conditions are relatively the same as they are now.

The building which fell under its own weight was four stories high, 90x110 feet in size, and cost about \$39,000, although a good contractor said it couldn't be built for less than \$54,000. It was to be used as a furniture store when completed, and the ground floor had considerable new stock stored in when the crash came. It was a miracle that only four were killed.

The utter worthlessness of concrete as used in so many cheap buildings was demonstrated in the testimony elicited be-



City Building Inspector and His First Assistant Inspecting the Ruins.



Committee of Engineers and Architects at the Ruins the Morning After the Collapse.

in a small frame dwelling adjoining the new building. Without a warning of any kind there was a loud rumbling and an instant later a great mass of debris, hundreds of tons in weight, came crashing down upon the helpless inmates of the doomed building. Concrete, "the indestructible," is now on the rack before an investigating commission of Cleveland architects, engineers and building contractors, and some interesting facts are to be brought out in the report now being drafted.

It has been demonstrated, for one thing, that while concrete may be more or less carelessly handled in real hot weather, it is an extremely dangerous material when the raw, damp weather of fall and spring sets in, and is absolutely worthless in cold weather as a structural element. Another lesson which has been taught is that there is no economy in concrete construction, as compared to brick and steel. It is true that sometimes the buildings can be put up cheaper, but the problem is to keep them standing. Put up with honest labor, honestly paid, concrete is dear all the way through. With enough steel to carry the stresses independent of the concrete reinforcement and with a squad of inspectors armed with sections of gas pipes and sand bags on the job, concrete in the hands of the average building workmen is perhaps a

fore the investigating committee. This committee consisted of H. B. Briggs and V. E. Thebaud, architects; W. O. Henderer and B. R. Leffer, engineers, and J. C. Skeel and James R. Gloyd, practical building contractors, who represented the Builders' Exchange.

A view of the ruins was enough to make the average man a lifelong convert to almost any other material offered save concrete. Piled up in great masses in the cellar, the green concrete chipped off under the pressure of the hand like great chunks of mud. Two brick chimneys towered above the ruins, living monuments to that material as a structural success. These stood in addition to the wall mentioned before. Everything else was heaped in one wild mass in the hole below. Everything, with the exception of a few curtain walls, was of "reinforced" concrete.

Cleveland, Ohio, has one of the most rigid building codes of any city in the country, particularly relating to concrete. It was brought out at the probe following the accident that notwithstanding the many provisions of the code meant to safeguard the workmen, the owner and the public, that the rules were ruthlessly violated and are being violated in many other instances throughout the city. Believing that about all that has to be done is to "mix the mud," the cheapest kind of

labor was employed on this particular building and the results spoke for themselves.

It transpired that in bending rods for use in the concrete reinforced beams that pieces of the steel broke under the pressure, but were, nevertheless, thrown in and covered up with the mixture. The floors, made of concrete slabs, were not anchored into the walls, as the contractor told the architects' superintendent that it wasn't necessary to do that because the weight of the floors would hold them in place without any anchoring.

One morning the superintendent representing the architects arrived to find seven loads of yellow sand delivered on the job. The specifications called for clean, sharp building sand. The superintendent investigated and found the yellow sand about half clay and loam. He told the contractor that it couldn't be used. Next morning, when the superintendent arrived on the scene, the sand was gone, but nobody knows

the construction of concrete building, was given a rude jolt in this particular structure, for the superintendent in charge didn't know whether the slips for tested cement represented that actually used on the job or some other lot of cement. Neither did he know the amounts of cement, sand and stone used in the mixture, nor could he explain the relation of the three in a concrete mixture.

Despite the warnings of several workmen on the job that the concrete was simply a "lot of mush" and "rotten to the core," the work of constructing the building proceeded. Workmen testified that when they walked on the floors their heels sank in the concrete. It was common report about the neighborhood that the building might topple down, but the contractor, eager to collect his \$39,000, hurried the work along. The fact that it fell after working hours probably kept the death list from being three or four times the size it was.

Cleveland's city building inspector admits that the code



Remains of House in Which Four Were Killed and Eight Injured by Collapse of Concrete Building.

to this day where it went. Probably it was used in the building.

Columns about ten or twelve inches square were used. Into these near the floors, while the concrete was green, were driven blocks of wood, so that the baseboards could be nailed to them without much trouble. These blocks necessarily weakened the columns greatly. Several columns and beams were not true, but instead of recasting them the parts which were out of plumb were merely chipped off so the surface looked all right.

Although the weather during the construction was unusually raw and damp, the forms were removed at about the same time allowed for hot weather. They were also pulled out from under in the absence of the superintendent and entirely without his consent. However, he took no action to penalize the contractor for disobeying this important provision of the building code.

The practice of testing cement, held to be so important in

regarding concrete construction is broken continuously by contractors. Manufacturing their materials on the site and casting the building there leads to many abuses. Unlike brick, which is honestly made at a plant, the materials which enter into a concrete structure undergo no inspection after once covered up. No one knows whether the cement is good or bad, whether the workmen have been careless or cautious, whether the building is going to stand up under the loads imposed upon it or come toppling down like a house built of dominoes.

This unfortunate collapse in Cleveland has its message to the brick builder and to architects generally. Concrete may have merits for certain purposes, but those merits are not obtained by cutting the cost of honest materials. Cheap labor may be used in setting concrete base for brick pavements, but it cannot be used in erecting concrete structures. Brick-masons may charge more for their time, but when a wall or a building is completed one knows that it will stand the

weights to be placed upon it. Honest architects and honest contractors continue to accept very cautiously the marvelous statements about concrete and stick to brick, the material which has never failed yet to give universal satisfaction.

CONCRETE FAILURES STILL RECORDED.

Some years ago, when the public was almost daily startled by serious and often fatal failures of concrete structures, the concrete advocates declared that it was only the natural result of the use of a new material. They were confident that the nature of concrete would soon be generally understood, that workmen would learn how to handle it, and that accidents would then be a thing of the past. These rosy predictions have not come true. There are continual collapses of concrete structures in all parts of the country, and the list of victims still grows. The nature of the material is doubtless much better known now than it was a few years ago, but this is from the theoretical side. In practical operations it still continues a dangerous and treacherous material to handle. After every accident the wiseacres become busy and prove conclusively that if so and so had been, such and such would not have resulted. There is always an "if" in the way, and generally a whole battalion of them. In our news columns we present a brief account of two concrete collapses during the present month, one of which was attended by loss of life.

It is strange that so many of our builders and engineers should pin their faith on a material of such a nature that any one of a hundred contingencies may produce irretrievable disaster. If human beings were infallible it might be safe to trust concrete to the ordinary workman, together with a whole volume of instructions to be followed rigidly. The exact proportion of the different ingredients could be set down, the size of the aggregates, the necessity of keeping them free from dust, the advantage of using clean, pure water, the exact moment to apply the mixture, the precise amount of tamping to be employed, the method of uniting old and fresh concrete, the time that the molds must be allowed to remain, and the thousand and one particulars that the concrete engineers declare most important if the resulting structure is not to tumble about the ears of the builder.

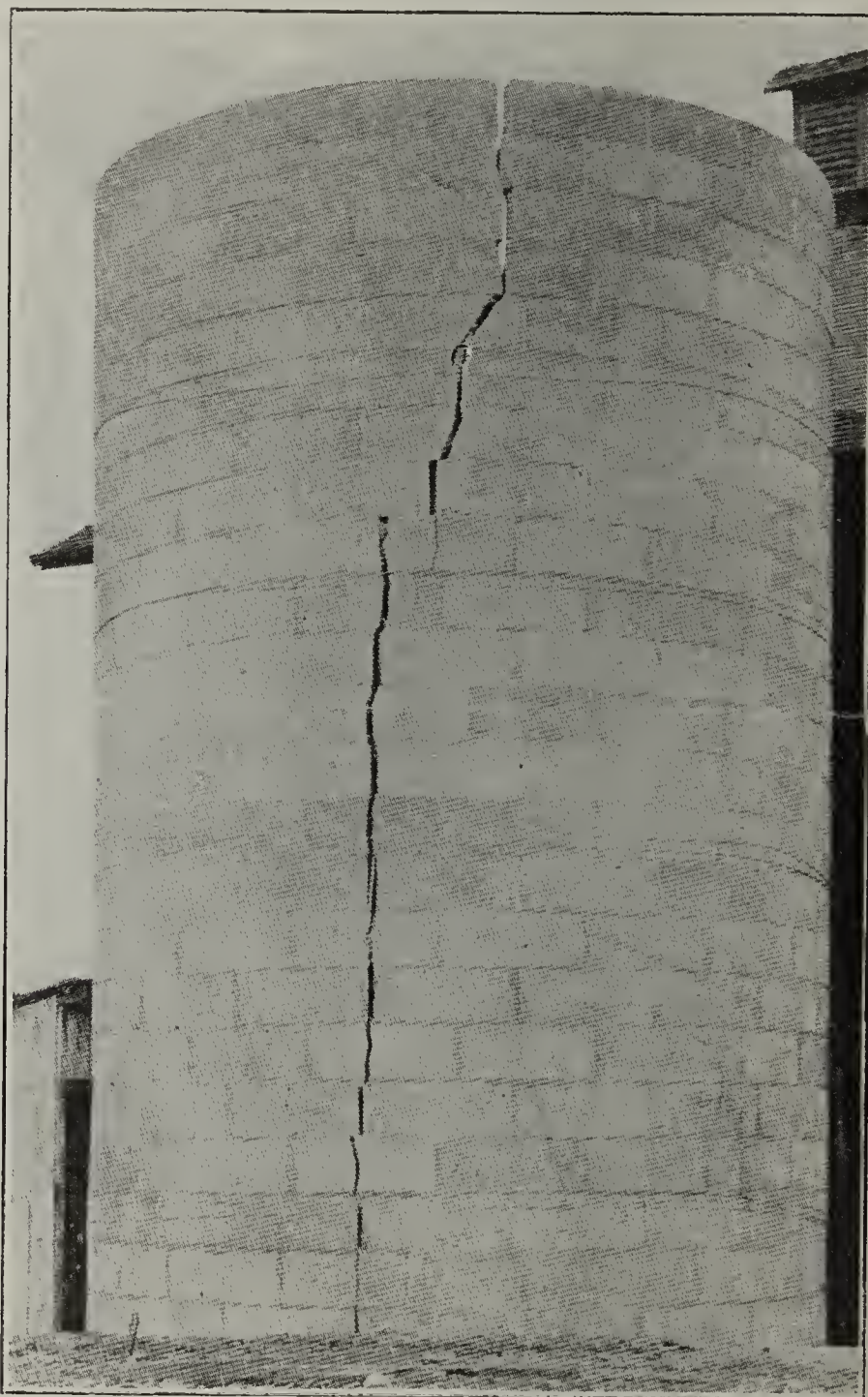
To the unprejudiced observer it seems almost too much to expect that the average laboring man can keep all of these things in mind, and the engineer cannot always be on the job. One of the suburbs of New York makes a boast of the excellence of its building code. On one of the leading thoroughfares of this place the other day the writer witnessed a gang of workmen building the concrete cellar walls for a block of buildings. Instead of broken stone, gravel was used and a considerable portion of the sand was filled with loam. Evidently gravel and sand alike had been gathered from some nearby bank without any effort to get clear, sharp sand or to exclude the loam. The building inspector could have made no protest, for the work had been completed just as begun. Will it surprise the authorities if the buildings erected on so unstable a foundation collapse after a year or two?

Mention was made last month of the startling condition of affairs shown by an investigation of the concrete work done on the state canal system of Ohio. Since 1904 Ohio has been building up a canal system and has appropriated for the work no less than \$3,412,685. As a result of an investigation undertaken by the Toledo Blade, it is found that the concrete work is rapidly going to pieces. This deterioration consists not of mere surface disintegration, but of deep-seated and vital defects. Concrete locks on many sections have become useless before a single boat has ever passed through them. Great slabs of the concrete have broken loose, cracks run entirely through the walls, and large sections of the surface have crumbled away. We present reproductions of a number

of photographs, showing the condition of affairs at different points on the canal. It is absolutely impossible to gainsay the evidence of the camera. The concrete men may seek to evade or befog the issue, but these pictures cannot be argued down.—Stone.

THE CRACKING OF A CEMENT SILO.

A campaign has been made among farmers and dairymen with the idea of getting them to use concrete and cement blocks for the purposes of construction. Of course a strong argument can be made in places where wood and stone are scarce. But in these sections expert workers in cement are also scarce, and there have been many and costly disasters. We present herewith a view of a silo built of cement blocks in



A Ruined Cement Block Silo.

the West. This is from a photograph furnished by Hoard's "Dairyman." As soon as the silo was put in use it split from top to bottom. It will be seen that the blocks broke right through, without regard to joints. STONE.

FIREPROOF BUILDINGS.

"Just to show how little modern names mean, two more 'fireproof buildings' have burned in Philadelphia."

The above is only a paragrapher's quip in one of our leading dailies, but though supposedly a joke, it represents fairly the popular notion and what can be called the culpable ignorance of most men. The buildings referred to were so-

called "slow-burning" construction, where the heaviest timbers are used in the hope that only some of the surface may burn off. Those who profit by the fraud or who don't know any better call that "fireproof," so do they call fireproof any old shack that has a tin roof or is "protected" with some patent paint mixture. Real fireproof construction is a building of brick or terra cotta with steel framing protected with terra cotta, tile floors and partitions of the same tile, elevators and stairs enclosed so as to cut off each story by itself, doors and interior trim of metal, and the windows protected with wired glass, such a building as the Singer Tower in New York, or the Board of Underwriters' Laboratory in Chicago. In such a building only the contents of one room may burn as a result of carelessness in starting a fire in that room. Anything less than that construction may be a step in the right direction, but in fireproofing it is much as with a chain where the whole thing is only as strong as the weakest link. And the folly of all imitation, inferior construction and frauds is that such a perfect building as described, thoroughly fireproofed, costs in the long run really less than does the ordinary shoddy fire-trap!—Building Notes.

CONCRETE BUILDING OVERDONE.

The "Architect and Engineer," a journal generally supposed to be a cement organ, an advocate of reinforced concrete construction for all purposes, now urges greater conservatism in the use of that material, a warning that is as timely as it is unexpected, for fewer materials have been more overrated, abused, than has concrete.

Says that journal editorially in its last issue:

"Unbiased engineers will agree that concrete construction is still in the experimental stage and that the constructions of the last decade have been done rather on a large scale without waiting in many instances for the outcome of proper tests, or studying the conditions to which the concrete structures had to be subjected. Since we know that concrete is destroyed, even by feeble acids and by alkaline solutions, why do engineers expose sewers, aqueducts and pipe lines to those corroding agents? * * * Water to be carried through aqueducts should be tested repeatedly in order to find out if it carries carbonic acid in solution, which is sure to soften the concrete if present in noticeable amounts. Instead of doing this, millions of dollars are spent on that work, with the result that the structures decay in the course of a few years and the construction in question becomes a disgrace to the cement industry. Is concrete to blame if it is thus used in the wrong place? * * * Most builders call fireproof every construction that cannot be ignited like wood, and forget that concrete columns, beams or floors with the usual one-inch fire-protection covering the reinforcing metal are mostly affected by fire to such an extent that they have to be replaced or that they collapse."

FIREPROOF BUILDINGS.

Complete reports of building operations in 1909 are only now available and in building circles there is much gratification over the fact that of the total expended, some \$930,000,000, over 73 per cent. was for "fire-resisting" buildings, an unusually high percentage.

Experts now explain, however, that that figure is misleading, in that many take it to mean "fireproof" buildings. By "fire-resisting" it appears the authorities mean anything that is not wholly of wood, frame construction. Houses of brick walls and tin roofs, though all their floor and partition construction be of wood, are so called, buildings that could only "resist" fire a very little while. As a matter of fact, the really "fireproof" construction, that is, buildings with walls of stone or brick and all the framing of steel protected with hollow fireproofing tile or concrete protection, only amounted

to 14 per cent. of the whole. And in most of these the owners only aimed at protecting the structure; they did not enclose the stairs and elevators, protect the windows nor do half the very necessary things to save the lives and contents in those buildings. The hollow tile or concrete will protect the steel and the external walls will not burn, nor the roof, but the tenants' furniture and papers and property can all be destroyed. These men have occupied those buildings under the impression that they are safe, and they are fairly so as far as the owners' interest is at stake, but not insofar as the tenants' interests are concerned. Of the really fireproof, absolutely fireproof construction, where fire can do but a very small percentage of damage to buildings or contents, only a handful were built in 1909, scarce 3½ per cent. of the entire expenditure. And the disquieting feature about it all is that while our population has increased 74 per cent. in thirty years, our fire losses have increased 134 per cent. in the same period. —The American Contractor.

PUGET SOUND CLAY NOTES.

GENERAL BUSINESS with the clay industries on the Puget Sound is somewhat slack, especially so with the manufacturers of common brick. Paving and sewer brick are still in good demand, and factories are kept busy. The building for the month of November will be below last month. According to a table prepared by the Pacific Builder the building activities in the cities of the Pacific Northwest have been very extensive the past ten months of this year. The comparison covers the period of the first ten months to November 1 of each year:

	1910.	1909.
Seattle, Wash.—Total am't of permits.	\$15,396,730	\$16,749,118
Portland, Ore.—Total am't of permits.	15,045,577	11,209,325
Vancouver, B. C.—Total am't of permits	10,298,355	6,135,575
Spokane, Wash.—Total am't of permits	5,483,209	7,627,496
Tacoma, Wash.—Total am't of permits.	2,415,923	4,098,137

The contract for the new sixteen-story Hoge building will be let to the Thompson-Starrett Company, of New York. The New Metropolitan Theater building was awarded to the Stone & Webster Engineering Company, and the excavation was started this week. The Thompson-Starrett Company was also awarded the contract for the seven-story building which the Union Land Company will erect at once adjoining the Windsor apartments.

The cities in the Yakima valley are busy building also. At Pasco two new business blocks will be erected at once on Fourth street, and at North Yakima the plans are ready for the new Yakima Theater, which will be an entirely fireproof building of brick and steel.

With the erection of larger and taller buildings the question of height has been agitated considerably since the forty-two-story Smith building has been designed, and its permit taken out. Architect F. L. Baker in an address before the local chapter of bankers stated that there is considerable talk of the limitation of height of buildings. This question involves the matter of public and private rights, the rights of the public, the question of light, air and sanitation, as well as the architectural aspect of buildings. The rights of owners involves the right to improve property up to the point where the improvements interfere with the rights of neighbors and the public at large. It is recognized by all that no man has unlimited rights in any property. The limitation on buildings, to my mind, should be the limitation of the owner's occupancy to a certain number of times the area of the ground he owns. We may suppose two owners are separated by a sixty-foot lot. These owners wish to put up buildings suited to a particular business, say a department store. They desire the greatest possible area of unbroken floor space, light from front and rear, and artificial light being sufficient. So they build to cover their entire property, leaving no light areas on the

sides of their buildings. The owner of the property between them should be permitted to build higher if he wishes to build an office building or similar structure requiring more light and air, but only to the extent that will give him an aggregate floor space equal to that of his neighbors. This would secure stability in property values, preservation of light, air and sanitation for both public and private parties.

The Washington Material Men's Association has now also taken up the question of changing the present Washington lien law, and while this association does not stand for exactly the same principles as the Washington Building Arts and Crafts Association, the two movements together will certainly give some relief, if either an amendment to the present law or an entirely new law should be enacted at the next session of the Legislature.

The principal clayworking concerns of Tacoma all have some court proceedings against them for liability for injury. The F. H. Goss Brick Company was sued by one of its employes for the loss of a crushed hand and the jury brought in a verdict for \$8,500 against the company.

The Far West Clay Company was sued by one of its employes for being scratched by a set screw, and the jury in its case was unable to bring in a verdict and was discharged.

The Little Falls Fire Clay Company was sued by two employes for damages for the falling of a concrete mill at their new plant at Bayne, and another employe is suing for \$10,000 for injuries received while at work.

Regarding the new clay industry at Deary, Idaho, the new company is now burning brick. They have two rich deposits of clay in the immediate vicinity of Deary. One consists of a heavy bed of kaolin, overlaid with a thick vein of white plastic potter's clay, and the tests as made by Mr. Gustave Voelker, the manager of the company, show these clays to be well suited for high-grade clayware. The other deposit is a red burning clay underlaid with shale and fire clay.

SIWASH.

MANUFACTURERS MAKE OUR GREATNESS.

We are in the habit of unquestionably and unconditionally accepting the idea that it is our farmers and our great agricultural resources that make the United States famous. They are enough to make it famous, too, as compared to the rest of the world, but just the same we may follow blindly after this idea and eventually come to believe that the farmer is the whole thing, when the fact of the matter is he is not. Not by quite a lot. Our manufacturers are the real source of our greatness, and the export of manufactured material is a much bigger item today than the export of foodstuffs. Moreover, it is our manufacturers or mechanics, the inventive genius and the capital and push that puts practical ideas into execution and turns out machinery, that makes it possible for our farmers to accomplish the great things they do. It is plows, cultivators, mowers, reapers and the great quantity of mechanical devices that make farming possible in the magnitude it is carried on in this country. And it is this same supremacy in mechanics and manufacture that has really made the greatest share of the fame of the United States. It is well to get this fact in mind occasionally, otherwise we are likely to reach the erroneous conclusion that nothing counts for much but the farmer, whereas the facts of the matter are that our mechanics and manufacturers are the prime factors in the national development and the farmers play the second fiddle.

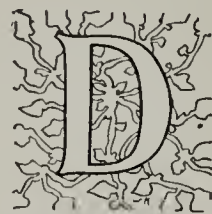
WHY THE LAMP WENT OUT.

In the parlor there were three:
Girl, the parlor lamp, and he;
Two is company, no doubt
That is why the lamp went out.

—Princeton Tiger.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK BUILDING NEWS.



DURING THE past month there has been quite a change in the prospect for brick manufacturers in this city and the surrounding country. A month ago it looked like the Kansas plants would burn all kilns full before they shut down and would market the brick throughout the winter. Now it is a sure thing that a great many of them have shut down without filling their kilns, the shut-down being caused from a lack of water instead of a lack of gas.

According to the report of men who have been born and raised in Kansas and Oklahoma, the streams of those States are dryer at the present time than they have been in a great many years, in fact within the memory of these men. Streams which have always run a good stream the year around in former years have not run for a month or more, and the holes of water where steam plants are pulling on them have gone down to the point where they cannot be used in many cases. This shortage of water was not expected, and no provisions were made against it. The very unusualness of the dry season is shown by the fact that plants had made no provision out of the ordinary for a water supply, not feeling that any especial trouble was to come from that source, as rains were frequent enough to not only keep the streams running, but to also furnish water enough in an ordinary pond the year through.

A brick dealer of this city has just returned from a trip through Kansas and Oklahoma and says that nearly all the plants in the two States were either already closed or were preparing to close within a very short time unless it rained enough to make water plentiful again, and this is hardly to be expected at this time of the year. The moisture that comes after this time is more likely to be snow, and it will take a long time to fill up the ground with water from snows without making it run on the surface. It is most likely to continue dry until the winter is well advanced, and then plants will hardly figure on starting up until the early spring.

This will change conditions in Kansas City, as the local plants will probably have more of a demand to supply before spring, and will have plenty of competition for the early spring business, for plants which have been idle all winter in Kansas will have all their repair work over with early and will be ready to turn out brick as soon as the bluebirds show up. This is generally taken to indicate that even an exceptionally strong demand in the spring will not cause much of an advance in prices, owing to the production being so large then.

There has been quite a change in the money market in this city in the past month. Conditions are becoming more favorable each day for building operations. Loan people are beginning to nose around and locate builders, and it was only a couple of months ago that it was the builder's who were nosing around after the loan men, and then got an icy stare for their trouble after they had found one. Then some of the most warm-hearted of the loan men offered to secure a loan of something like a third of the value of a proposed property at 6 per cent. interest upon payment of 6 per cent. commission. Now the loan men are looking for builders and are offering to get loans of 40 to 50 per cent. of the value of buildings, except flats, at the same interest and only charge 2 per cent. for their services. This change in the attitude of money is not causing any big increase in the demand for brick just at this time, as it is a little late for builders to begin operations on new jobs, and they are preparing to start early in the spring, but it should mean the greatest building year in 1911 that Kansas City has ever had, owing to the fact that so many buildings have been held up for the past year that have been planned and ready to start. These buildings will

go ahead now, and then the ordinary amount of new business should make the coming year a big one.

The Altoona Vitrified Brick Company, of Altoona, Kas., has shut down for the winter, and will give the plant a general overhauling before opening up again in the spring. A couple of their down-draft kilns are to be rebuilt.

There is an inclination on the part of some builders to buy their brick now and leave it on the ground, so as to be sure to have it there early in the spring when operations begin. There is nothing to lose and everything to gain by such a move, as they will certainly not be able to buy brick any cheaper in the spring than they do now, and likely not as cheap, then they will hold off the delivery upon one excuse or another so that the bill will not come in for the brick until well along towards spring, and then will delay payment on the bill until they will not have to spend their money

until about the same time they would if they waited till spring to place the orders. The brick men, while they understand the process, are anxious to get as much brick out of their plants as possible throughout the winter months, and so put up with the imposition.

The Union Brick Company, of Iola, Kas., has been running right along and proposes to run all the winter. This company has been drilling gas wells of its own, and brought in nine this fall, none of them big ones, but furnishing an ample supply of gas for all their operations and a considerable surplus, so they will not need to depend upon commercial gas.

In this city practically all the plants are shut down at this time. Flanagan Bros. are running, making brick to take care of their own contracts, and the Kansas City Hydraulic Pressed Brick Company is running its Diamond plant, and will probably continue to operate it throughout the winter.

K. A. W.

QUESTIONS OF INTEREST TO CLAYWORKERS.

ANSWERED BY J. J. KOCH.

Can The Clay-Worker give us any method by which brick may be colored different from their natural color and be colored without excessive cost? We would be glad for any information published on this subject.

Answer.—The color of burnt clayware is dependent upon the chemical constituents of the clay, physical condition of the parts, mode of manufacture, temperature and duration of the burning, character of fire or heat produced and mode of cooling. About the best classification of clays is the one devised by the immortal ceramist, Hermann A. Seger, which divides clays into four types, viz:

1. Clays burning yellow, containing iron and lime, which, when properly burnt, are of a yellow color.
2. Clays burning red, containing iron, low in alumina, free from lime—the red burning brick clays and loams.
3. Clays burning white or yellow, free from lime, low in iron—the pipe clays, fire clays, lignite clays.
4. Clays burning white, low in iron and high in alumina—as the kaolins.

More detailed statements can be found in "The Collected Writings of Hermann A. Seger," translated and published by the American Ceramic Society. In the United States the manipulation of clayworking is essentially along the lines of European practice, with only slight variations demanded by local conditions, type of kilns, clay and fuel. Iron is the most abundant color factor in burnt clayware coloring, its effect being to a certain extent dependent upon whether the same is finely disseminated or present in nodules or grains. The intensity and shade of color is dependent upon the temperature employed, degree of oxidation or reduction, rate and manner of cooling. Lime when present in small quantities has a tendency to sadden (obscure) the iron color when in a fluxed condition; when sulphuric acid is present the color brightens up considerably, as sulphate of lime does not act as a flux under ordinary conditions. Sulphuric acid in the presence of moisture has a tendency to bring out the red color, and the writer recalls a plant where all the kilns but one furnished a nice yellow body color. At one time it was necessary to change or repair this particular kiln, and it was then found that the kiln was built upon a spring of water, and the steam arising therefrom was the cause of the trouble.

Manganese oxide, in powder or pulp, has the effect of producing a brown shade when mixed with red burning clay. This shade is dependent first upon the used temperature and secondarily upon the percentage used, which in practice runs

from $\frac{1}{2}$ to 2 per cent., governed by the lighter or darker shade wanted. Lime, however, when present in clays containing iron in comparatively large quantities as related to iron (iron 1 to lime 2.2 per cent., 3.5 per cent.) when burned with fuel containing no sulphur gives a light color varying from flesh color to intense sulphur yellow color when practically vitrified. When thoroughly vitrified the color runs to a greenish yellow or green. When fuel containing sulphur is used periodic reducing conditions must be provided for so that the formed sulphate of lime may be deprived of its sulphur and the resulting oxide of lime will be able to enter into combination with the iron in the clay, and the iron-lime silicate then formed give the clay that well-known yellow color of calcareous clays. However, great care must be taken in handling such calcareous clays during the burning process, as the fusion of the lime-iron compound is rapid and might be termed quite sudden and the burned ware at this period is liable to collapse or sag. Oxide of manganese mixed with the so-called calcareous clay gives a light gray color when the ware is underburned, but in most cases the yellow color is too intense to let the manganese show up. In many cases the so-called No. 2 fire clay mixed with manganese is used for making gray brick, but if not burned properly the titanium and vanadium oxide contained therein becomes soluble in the presence of moisture and stains the walls made of such brick a very intense blue or green. The temperature at which such brick are burned has a great deal of effect on the color. Take, for instance, a standard brand of St. Louis No. 2 fire clay containing 2.63 per cent. of iron, burns

White at 1000 degrees to 1500 degrees F.

Pink at 1500 degrees to 2000 degrees F.

Buff at 2000 degrees to 2300 degrees F.

Brownish at 2300 degrees to 2700 degrees F.

Other light burning clays are sometimes used for body clays in making gray brick, and again, in some localities a silver gray is made by converting a red oxide of iron in a burnt clay into a reduced iron, which, being black, and the red iron color eliminated, makes a comparatively fine gray. This is accomplished by reducing action during cooling with fuel containing no sulphur and is very much practiced in Europe in making silver gray roofing tile out of a red burning clay. Sometimes a vitrified gray is also made in carrying on reducing conditions during the burn. Dry clay brick as a rule show up very distinctive as to the manganese, in that the color made with mud brick is a kind of smeary; that is,

blurred. The wetter a clay is worked the darker the color when clays containing iron are burned. A dry mud brick set upon a dry clay press brick will, when burned, show up a darker color than the dry clay process brick. The finer the clay and the smoother the brick the truer the color, as high spots and depressions cause high lights and shadows and thereby produce peculiar effects, and some of the bricks that are just now the fad are based on such a line or process to produce such effects. Hydraulic brick presses can give an excessive pressure and thereby press brick harder than mechanical presses with a dryer clay, and gray bricks when so made are light in color. Some manufacturers use a mixture of light and red burning clays, aiming to produce the gray color by keeping the iron in a reduced form. Each clay has its peculiarities, and it takes time and experience to cope with the possible arising difficulties. On one plant the clay has to be dampened and go through a so-called sweat or ageing period; at another plant the clay is kept as dry as possible and worked up as early as possible, in both instances to enable the manufacturer to obtain the desired colors. At another plant for the same reason the clay is worked in a rough, slipshod kind of a way through a mud brick machine, passed through a dryer and then made into a brick on a dry clay brick press. At another plant the brick are dried as rapidly as possible, and at another plant the set brick are kept sweating in the kiln, and in both cases the respective method is pursued in order to obtain the desired color. Brickmakers are aware that as a general rule bricks have a different color on the sides than the working face has, if brick are set faced, and for this reason some manufacturers set their products on the flat so as to get the desired colors. Again, experience has taught that large flues in the setting cause flashed ware, and in order to get flashed colors the brick are set on the flat with wide flue spaces; in fact, at one plant the flues are made from four to four and one-half inches wide. Mottled brick (black spot brick) can be made by using manganese in various size grains (the size of the grains governing the size of the spots) by fusing grains of bisulphide or iron into spots or by reducing iron (in grains) to metallic iron, reconverting the same into ferrous oxide, and the ferrous silicates will make black spots. Now do not get scared. All this chemical lingo means nothing but to finish up on smoky or tight fires or proper drafts. No cast-iron rules will hold good for producing colors, and good and reliable opinions cannot be given until thorough examination has been made of the clays and process. In late years quite a number of technical information and instruction bureaus have made it a business to solve clayworkers' problems, and addresses may be found in the columns of THE CLAY-WORKER.

I have a large body of clay, light in color and weight. It analyzes as follows:

Silica	47	per cent.
Alumina	38	per cent.
Iron	1	per cent.
Magnesia	1/2	per cent.
Lime	1/2	per cent.
Alkalies	9	per cent.

I have been told that this is a very fine pottery and china-ware clay. It is entirely free from grit, so much so that it can be used as a metal polish. Can you tell me what this clay might be used for most advantageously? That is, what sort of ware can be made of it?

Answer.—On reading the analysis the first impression one receives is that the clay is a light burning clay that would vitrify quite easily by taking the analysis items as submitted grouped in the customary way:

Non detrimental	85
(Silica and alumina.)	
Total detrimental	11
(Iron, lime, magnesia and alkalies.)	

This proportion would indicate, by comparing with published reports, a vitrification temperature of about 2,000 degrees F., a little more or less. But taking into consideration

that the "alkalies" amount to about 82 per cent. of the total 11 per cent. of the detrimental, and as per molecular weights of soda and potash the fluxing values of alkalies are very high or effective, it becomes a wise precaution to make a so-called calculation analysis for determining the placing of the silica and alumina present as an adjunct to the fluxing value of the detrimental.

We can first attack the problem from the feldspar view, basing the calculations upon the percentage basis, as given by "Dana," to-wit:

Potash feldspar=16.9 potash, 18.4 alumina, 64.7 silica.
Soda feldspar=11.8 soda, 19.5 alumina, 68.7 silica.

And, secondarily, use "Dana" percentage figures also for
Kaolin=39.5 alumina, 46.5 silica, 14 water,
or by factoring the above tables we have for

Feldspar

Alumina for potash = % potash X 1.0888.
Silica for potash = % potash X 3.8284.
Alumina for soda = % soda X 1.6525.
Silica for soda = % soda X 5.3221.

And we have for

Kaolin

Silica for alumina = % alumina X 1.1772.
Water for alumina = % alumina X 0.3544.

In making our first calculation we will assume the feldspar to be present as potash feldspar and the iron magnesia and lime to be free and as uncombined impurities, hence we have for 9 parts of potash—

9X1.0888= 9.7992 alumina
9X3.8284=34.4556 silica

thus leaving unaccounted thus far—

47.00—34.4556=12.5444 silica
38.00— 9.7992=28.2008 alumina

and further figuring that all the remaining silica is combined with alumina, we have—

12.5444X1.1772=14.7673,

or we find

28.2008X14.7673=13.4325 alumina excess,

a condition that is not likely to occur.

We will next attack the proposition from the soda feldspar view. In that we have for 9 parts soda

9X1.6525=14.8725 alumina
9X5.8221=52.3989 silica,

which would show that there is not silica even present to form feldspar, and none whatever for the formation of the clay substance. This is a condition that is very improbable, or, rather, impossible in a clay proposition. That such widely differing results are obtainable by the relative fluxing powers of soda and potash is a fact well known to ceramic chemists, and the commercial chemists should therefore make it a practice to report soda and potash separately and not jointly. The above calculations cited were about to be grouped as a basis for a report when a corrected report was received which changed the alkalies to 0.9 and read as follows:

Silica	47.00
Alumina	38.00
Iron	1.00
Magnesia	0.50
Lime	0.50
Alkalies	0.90
Water (loss in burning)	12.10

Total..... 100.00

We can now begin our calculations by grouping as follows:

Non-Detrimentals.

Silica, alumina and water..... 97.10

Detrimentials.

Iron, lime, magnesia and alkalies..... 2.90

Total..... 100.00

We have in this case for 0.9 potash

$$0.9 \times 1.0888 = 0.9797 \text{ alumina}$$

$$0.9 \times 3.8284 = 3.4455 \text{ silica}$$

in the assumed-to-be-present feldspar, in turn having to be accounted for—

$$47.00 - 3.4455 = 43.5545 \text{ silica}$$

$$38.00 - 0.9799 = 37.0201 \text{ alumina}$$

and calculating this remaining alumina to exist in the form of clay substance, we have

$$37.0201 \times 1.1772 = 43.58 \text{ silica}$$

which closely corresponds to the remaining 43.55 silica and all elements entering into the calculation have been accounted for. Using the alumina in the clay substance as a basis for water calculations, we have

$$37.0201 \times 0.3544 = 13.12$$

Written for THE CLAY-WORKER.

GOOD ROADS CONVENTION.

INDIANAPOLIS entertained the largest and most important good roads gathering December 6, 7, 8 and 9 that has yet been held in this country, and the general movement for better highways the country over received substantial impetus. Men prominent in the work of road building in forty States and from two provinces in Canada were present, and the program was participated in by a number of the State Highway Commissioners and a representative of the Government Office of Roads.

The meeting was the annual convention of the American Road Builders' Association, but in order to popularize it and interest the largest number of people, it was exploited as the American Good Roads Congress, and the closing day was set aside as Indiana day. As a result the sessions were largely



The Fine Paving Brick Exhibit at the Good Roads Convention, Held in Indianapolis, Ind., December 6, 7, 8 and 9, 1910.

which would be within the limits of an allowable error in analysis, which shows 12.10. Grouping these results, we have:

Water	13.12
Kaolinite (clay substance)	80.60
Feldspar	5.32
Iron, magnesia and lime.....	2.00
Total.....	101.04

All of which would indicate a china clay or kaolin of the best class, containing only a small percentage of iron and with lime and magnesia to mask the detrimental iron color; it compares very favorably with the best European china clays and is to be considered a first-class property. There should be no difficulty in placing this clay (its value being placed on the analysis) with whiteware potteries, floor tilemakers, paper mills and all other allied industries that demand a first-class china clay.

attended. Representatives of the clay industries took advantage of the opportunity and the cause of the vitrified brick as a paving material was ably presented.

One of the features of the Congress, which was held in the German House, was the exhibits of material and machinery in one of the large halls of the club house. The National Paving Brick Manufacturers' Association offered one of the most attractive as well as instructive displays. Brick manufactured in six States were exhibited and photographs of properly constructed brick pavements, both on city streets and country highways, were shown. A full size cement grout mixing box was on display, offering opportunity for those in charge of the exhibit to demonstrate the peculiar advantages of that form of box in obtaining the most uniform application of the filler to the brick surface.

One of the most important results of the Congress was the formation of a permanent organization in Indiana known as

the Indiana Good Roads Association to promote legislation in the State that will make possible better roads. A bill is to be presented to the Indiana General Assembly when it convenes in Indianapolis in January creating a State Highway Commission, extending State aid in the building of roads and providing for the use of convict labor in the preparation of road material.

The importance of this move is realized by manufacturers of paving brick. Under the present law no material aside from gravel and broken stone may be used in building public highways, and as the cost must be borne by the adjacent property, really permanent roads are impossible. Under the proposed law the bars will be down, and it will be legal to use the material best suited to the conditions. It will be possible, for instance, to pave those roadways which bear excessive traffic, such as those contiguous to cities, with vitrified brick and to produce a permanent roadway which will stand under the heaviest travel and practically eliminate the cost of maintenance.

James H. MacDonald, State Highway Commissioner of Connecticut, and president of the American Road Builders' Association, presided over the congress. Governor Thomas R. Marshall extended a formal welcome at the opening session, in which he declared that the Indiana road laws must be revised so that the taxpayer will get a dollar's worth of road for a dollar of taxes, a condition which he said does not at present exist.

"I believe that there are many smaller municipalities in this State," said the Governor. "where all the streets might have been bricked or asphalted with the money that has been wasted, or if the road tax had been paid in cash instead of being 'worked out,' as the present law permits."

J. E. Pennypacker, chief of road management of the United States Office of Public Roads, read a paper prepared by his chief, Logan Waller Page, Director of the Office of Roads, in which he told of the work the Government is doing in the promotion of good roads. He also presented a model bill for Indiana or any other State without such legislation, creating a non-partisan State Highway Commission and outlining the duties of the commission. The suggestion was for a commission without pay, one member being the State Geologist, and for the employment of a competent engineer, under whose direction the plans for roads should be prepared and executed.

Samuel Hill, president of the Washington State Good Roads Association, and a recognized authority on highway building, made one of the most interesting addresses of the congress. Mr. Hill spends thousands of dollars from his own resources each year in promoting better roads in his own State and has studied the science of road building not only in this country but in Europe. He asserted that the question of good roads is of paramount importance to the tariff or the Panama canal. He called attention to the fact that only 5 per cent. of the population of the world lives south of the Equator to benefit by the canal, and he said that the per capita trade with South America is only \$1.00. He asked whether more people in the United States will benefit by this trade or by good roads in their own country.

As to the comparison with the tariff, Mr. Hill showed that the saving to the owner of an eighty-acre farm in marketing his produce in one year by having improved highways would be enough to pay for the supplies he buys at "the store" in a year, and that only one-fifth of the articles he buys are affected by the tariff.

Mr. Hill was inclined to criticise the Government for its large expenditure on waterways improvements, while it refuses to improve the highways.

"What will be the use of improving the rivers," asked the speaker, "when, after the improvement is made, it is impossible at certain seasons of the year for the farmer to haul his produce to the river bank because of the condition of the roads?"

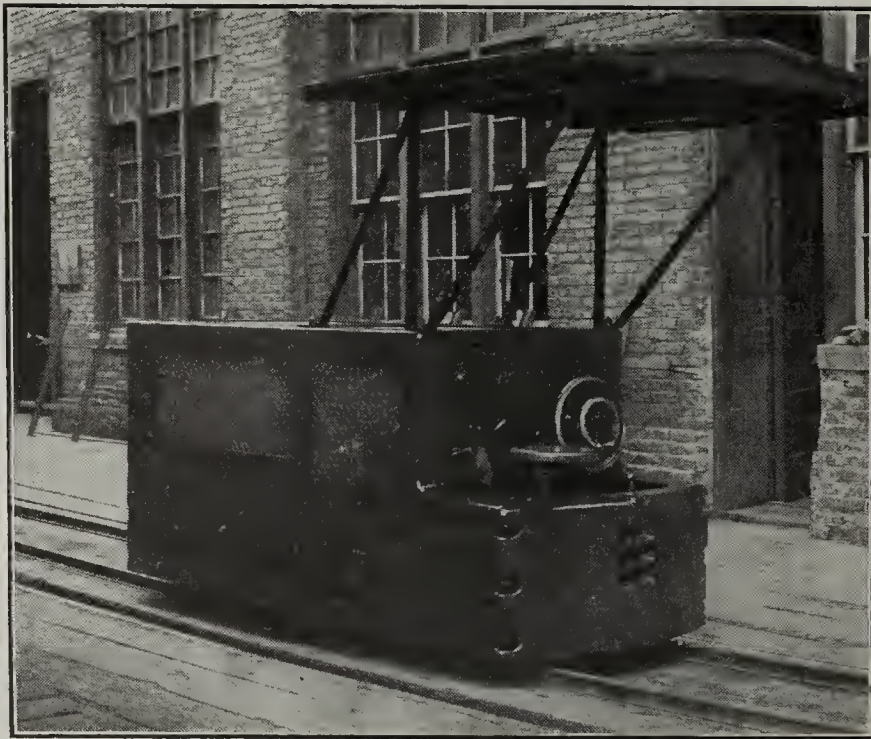
Mr. Hill called attention to a provision of the United States constitution requiring the Government to "build post-

offices and postroads." In violation of this he said the Government says to the taxpayer, "You build your own roads, and then we will condescend to give you rural free delivery."

A strong address was made by Harold Parker, chairman of the Massachusetts State Highway Commission, in which he declared that the \$9,000,000 which his State has spent in improving her highways was the best expenditure ever made for any purpose. He told of the transforming of the Cape Cod district from a sandy, poor, fishing community into a prosperous summer resort section by the construction of macadam roads.

James C. Wonders, State Highway Commissioner of Ohio, told of the road laws of his State and of amendments that are to be proposed. He said that in Ohio there are 14,168 miles of gravel roads, 9,687 miles of macadam and 231 miles of brick roads under State control.

Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, made an address in which he advocated the use of vitrified brick for the improvement of excessively traveled roads, especially near cities. He told of the 300 miles of such permanent roadway in Cuyahoga county, Ohio, and of similar improvements in other States. He said that such pavements would make it possible for farmers to deliver their foodstuffs to the market at any time of year.



Gas Driven Locomotive.

instead of merely when the roads are good. This, he said, would allow the farmer to sell his goods when the market prices are the best, and would also benefit the consumer, as it would not cause a shortage in foodstuffs when roads are usually bad.

Following Mr. Blair's paper there was a round-table discussion, of which Commissioner Parker, of Massachusetts, acted as chairman. Mr. Parker freely admitted that he favors macadam in his own State, but he said that there are places where brick should be used. He said he had visited Cleveland some years ago and had recommended the use of vitrified brick for the roads running out of that city. In the first place, the traffic in and out of the city is excessively heavy, and, again, other materials than brick are not so accessible, he explained. The great cost of maintenance on macadam roads, especially since the advent of the automobile, was discussed, and the use of brick was also offered as a complete cure for this condition, as the life of the properly constructed vitrified brick pavement was declared to be of greater duration than other pavements, with practically no cost for maintenance.

Detroit, Rochester and Toronto, Canada, all extended invitations for the next congress, but the place of meeting will not be decided until next summer, the question being left to the board of directors of the American Road Builders' Association.

IMPROVED CLAY HAULAGE SYSTEM.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



ABOUT A YEAR ago the Standard Brick Company, of Milwaukee, abandoned the use of horses for hauling clay from the pit to the crusher and installed a gas-driven locomotive.

The change has proven of great advantage. It has not only effected a decided reduction in haulage costs, but has also been the means of increasing the daily output of brick to the utmost limit of the company's present capacity.

A careful record was kept covering a period of six months during which time the locomotive has been in continual operation. The following figures show the daily amount of work performed, together with the operating costs:

Daily tonnage hauled, including empty and loaded cars, 290 short tons.

Weight of empty cars (approximate), 70 short tons.

Weight of loaded cars, 220 short tons.

Mileage of empty cars, 30.

ALL BRICKMAKING in New Jersey has come to an abrupt end. After one of the longest and warmest falls in years the winter suddenly shut down and there has been no question about it since. The mercury fell to close to zero and remained there day after day, effectually preventing all work about the yards and closing every stream to navigation. Some brick are being shipped by rail, but water shipment is a thing of the past for the present. The market remains unchanged. In Newark they are purchasable at \$5.25, but practically no one wants anything now. The season is over for this year. The Hackensack river makers are generally pretty well cleaned out, while those on the Raritan and in other sections are still well enough stocked to satisfy any reasonable demand for a time.

The Granton Brick Manufacturing Company is the latest entrant to the manufacturing field. The ice is in the town of Union and the officers are: President, Hiram H. Welsh;



Loaded Cars in Standard Brick Co.'s Clay Field, Ready to be Drawn to Plant by Milwaukee Locomotive.

Mileage of loaded cars, 30.

Hours of service, 10.

Wages of operator	\$2.00
Fuel and lubricating oils.....	1.30
Maintenance and repairs	.15
Interest on investment at 5 per cent.....	.33
Depreciation on investment at 10 per cent..	.67

Total\$4.45

It will be seen from the above figures that the locomotive hauls 1,740 tons miles daily at a cost of \$4.45, or \$0.0026 per ton mile.

The type of gas-driven locomotive installed is a Model M-2, 35 h.p., four-cylinder outfit, manufactured by the Milwaukee Locomotive Manufacturing Company, Milwaukee, Wis. Brick manufacturers contemplating a change in their haulage system will do well to investigate the merits of this type of motive power. Catalog H-100, fully describing and illustrating Milwaukee locomotives, may be had by writing the company at Milwaukee.

vice-president, Adolph E. Asmus; secretary, Joseph Stiltz; treasurer, E. B. Young; counsel, John M. Bell, Rutherford. These are all well-known business men, though Mr. Welsh is the only practical brickmaker. The company has secured a large tract on the Hackensack meadows near the B. B. Babbitt works and close to two railroads. A plant is to be erected with a capacity of 100,000 bricks per day. The statement is made that the clay deposit upon its land is sufficient to give an output of 30,000,000 brick annually for 150 years. The company will be capitalized at \$300,000, one-half common and one-half preferred stock, paying 7 per cent. cumulative dividend. The company will issue first mortgage gold bonds at \$100 each, payable in ten years. Mr. Welsh was for a long time engaged in brickmaking in Hackensack, but went up the Hudson some years ago, where he has been at work since.

Hervey Haigh, Catskill, N. Y., has had a very prosperous season and writes that he now has under construction a continuous kiln for the plant of the National Fireproofing Company, at Hamilton, Ont., this being the fourth kiln he has built for that company.

Written for THE CLAY-WORKER.

THE NEW HOME OF THE C. W. RAYMOND COMPANY.

Beautiful Fireproof Factory One of Finest Clay Machinery Manufactories in the World.

AN EVENT of unusual interest has transpired at Dayton, Ohio, an event of much importance to the clay-working trade. The C. W. Raymond Company has moved into their new factory and now bids the clayworkers of the world to come and inspect the largest and finest exclusive clay machinery manufactory in existence.

Dayton has achieved great renown as an industrial center. The National Cash Register factory alone has made that city famous the world over, and that enterprise is but one of many establishments of which Daytonians may boast with just pride. In the clayworking world Dayton is an important center, for the C. W. Raymond Company has long been a familiar name, so that the unusual event which it is our pleasure to chronicle at this time is but the assurance that the C. W. Raymond Company will be even more influential in the years to come, for they are prepared to meet every demand the clayworkers of the world may make upon them for high-class clayworking machinery of any and all sorts.

The name of Raymond has been before the clayworkers of the land for over twenty-six years. In the very first issue of THE CLAY-WORKER, in 1884, appeared the advertisement which we reproduce with this article. Every issue since that time has contained their advertisement, though in the passing years with the gradual broadening out and development of the clayworking lines into mammoth business enterprises larger space has been required, until today they use a four-page colored insert every month. A comparison of the smaller advertisements with their regular ads on pages 705-6-7-8 tell the story of how a large oak from a little acorn grew.

In the olden days the manufacturers of clayworking machinery did not need a large, well-equipped factory and foundry, for at that time slip-shod methods were excusable and expected, as the clayworking industries were crude and small. It is different, however, today. The clayworking firms find it imperative to increase the capacity of their plants and to make additional provision for better facilities in order to permit of a larger production and better quality of the product.

So it has been with the C. W. Raymond Company. They have found the increasing demand for their products so heavy that a large and better plant was the only solution for handling and holding their trade. One year ago they determined to make a radical change and one which would serve their purposes for years to come. They purchased a large tract of land of eight acres in the southwestern part of Dayton, bounded by Bolander avenue and the C., H. & D. railroad's main tracks. Here they erected their ideal fireproof factory. The buildings are well equipped and about ready for complete operation. The company is at present engaged in moving in from their old factory.

The cost of building such a plant was tremendous and the worry and responsibility encountered in undertaking such a task needed a great deal of backbone and excellent judgment in order to work it out to a successful end. Proof positive that the Raymond Company has been very successful in this enterprise is shown in the new, finely finished factory buildings. The visitor is deeply impressed with the beauty of the series of handsome brown flashed brick structures which are situated in the best possible manner so far as the requirements of the several departments demand.

The main building is 325 by 100 feet in dimensions, the walls being constructed of the Shawnee Flash Brick Company's variegated brown flashed brick, laid in suitable dark red mortar. Four hundred thousand of these brick were used

in facing the main building, the foundry and transformer house. The superstructure of the main or machinery building and the foundry was heavy steel work, well built and tested before being employed.

The main building, which is the largest of the group, is 52 feet high and is covered with a red clay tile roof purchased from the United States Tile Company, of Parkersburg, W. Va. Seventy-five per cent. of the wall surface of this building is given over to windows, which consist of large galvanized iron frames and Mississippi ribbed wire glass, giving the building the greatest possible light and ventilation. There are 443 windows in all of the three buildings, the transformer house being but a small structure. At the main entrances of the machinery building and the foundry are finely constructed steel rolling doors, which, when pushed up, are rolled into a small metal hood above the entrance way.

The main floor of the building is laid in cement, with an industrial railway system running directly through the center of the building, with spurs at regular intervals, which make the transportation of material from and to any given point an easy matter. The trackage is 24-inch narrow gauge. In the south end of this building are depressed tracks allowing plenty of room for the loading of several large cars run in from the west on the C., H. & D. railroad's spur.

There are two large galleries in this building, one on either side, while near the roof can be seen the runway for the large crane, which is capable of handling their largest machine,

Raymond Advertisement in January, 1884, Clay-Worker.

namely, their heavy duty dry pan, which weighs 36,000 pounds. The two galleries run the entire length of the building and are broad and give plenty of space for the purpose intended. On the west gallery are located the several rooms for the engineering department, including a large room for the draftsmen. A well-equipped pattern and wood shop is located to the south of these rooms on this gallery, while on the east gallery, which is the same size as the other, space has been allotted to the manufacture and assembling of friction pulleys, dies and smaller materials. Here also the smaller pieces will be stored until needed.

The main floor of the building is devoted to the finishing, assembling and erecting of the various machines and appliances. The machinery used in the numerous departments is all grouped in sections of 10 h.p. each, an individual motor being used in each section for driving each group. The total amount of horsepower used being 300, furnished by the Dayton Lighting Company.

At the northwest end of the machinery building is located the shipping and the superintendent's offices, while in the central portion of the eastern side of the building are the tool and stock rooms and machine shops.

The foundry is 100 feet wide and 125 feet long, of the same general construction as the main building and is located to the west and runs at right angles to same. The industrial railway system is worked out successfully here as in the other



General View of the C. W. Raymond Company's Fine New Factory.

building, the two being connected in such a manner as to greatly facilitate transportation of materials from foundry to machinery building.

Along the southern side of the foundry are the C., H. & D. double tracks, leading into the depressed runway spoken of before. The foundry is divided into cleaning, cupalo, fan, core and core oven rooms and superintendent's offices. The building is well equipped with all the up-to-date machinery

needed in the work to be carried on here. A ten-ton traveling crane is used for handling the heavy materials, while the industrial railroad is to be used to advantage in transporting the lighter pieces. The cupalo is a Whiting, 12 tons an hour capacity, while the core oven is of the company's own design, and closely follows their successful drying system.

The lighting and ventilation of the main building is carried out in this building also, the windows being constructed



The New Raymond Factory During Last Days of Construction.

in the same manner, the Mississippi ribbed glass being an excellent window glass, diffusing the light in such a manner as to make dark corners which tend to affect the workman's eye entirely an impossibility.

On the north side of the foundry is located the transformer house, a small brown brick structure, in which is located the electrical power station, connecting the plant with the Dayton Lighting Company's system. A 2,300-volt current here is transformed into a 220-volt current. From this point the electric current is transmitted to all the different groups in the several buildings, the plant being thoroughly equipped with electric power. In their lighting system they use twelve

and has adequate room for handling the office end of the business at this time, but is not in keeping with the rest of the fine plant and is only to be used until a large brick office building can be erected directly across the street close by the main and transformer buildings. In this new office building the company will carry out the artistic effect they have so well established.

The new plant, which is experiencing busy days at this time because of the hustle and bustle incident to the company's removing their property from the old factory into the new, increases the capacity of the factory nearly four times that of the former one. In the near future the company will erect a testing building, in which clay testing and the clay



Interior Views of Machinery Building, Showing Immense Main Floor and Spacious Galleries.



The Well-Equipped Pattern and Wood Shop.



A Corner in the Raymond Foundry.

regenerative flame arc lamps of 2,600 candlepower each. These lamps give such a powerful light that a newspaper can be read on the darkest days at a distance of nearly 100 feet from the lamps. These twelve arc lamps are distributed to the best advantage through the machinery and foundry buildings.

On the south side of the foundry is located the car shop. This is 30 by 80 feet and is completely equipped with all the necessary machinery appliances for turning out a large number of steel cars daily. At the rear of the foundry running to the southeast are located storage and pattern sheds, while the offices now occupied by the company are to be seen on the opposite side of Bolander avenue. This office is temporary

product manufacturing will be carried on to the satisfaction of new and old customers. The C. W. Raymond Company's numerous machines will be installed for operating in a small way, and their several types of dryers and kilns will be maintained to demonstrate to the inquiring visitor the many merits of same.

The organization of the C. W. Raymond Company is efficient and the large volume of business they are now transacting is most gratifying and well deserved. We wish to congratulate them on their new home. It is a mighty reflex of the growth of the clay industries, for it is in response to the demands of the clay trade that this immense manufactory has come into existence.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NOTES OF NORTHWESTERN OHIO.



BUILDING OPERATIONS in Toledo during the month of November were unusually active and the figures now show an increase of about \$200,000, as compared with those of last year for the first eleven months of the year. During November 133 permits were issued for new buildings of an estimated value of \$382,200, as compared with 85 permits valued at \$139,983, during November, 1909. Up to December 1, new buildings were constructed in Toledo this year amounting to \$3,253,977. Quite naturally this building activity has furnished a market which has proven highly satisfactory to local manufacturers and dealers in building brick. Not only in Toledo has there been a live market, but large quantities have been shipped out to the surrounding territory during the entire season. During the past few days the outside trade has dropped off materially and the bulk of the demand is coming from Toledo proper. Indications now are that there will be considerable building during the entire winter, a number of large contracts being already under way and numerous others projected. A splendid indication is the fact that commercial and industrial structures which to a large extent were lacking most all summer have been coming in in good shape during the past few weeks, and it now seems assured that the early spring will bring an unusually heavy demand for building brick. Already two or three million dollars' worth of improvements seem certain, and figuring and planning is general. The financial atmosphere is gradually clearing up and capital is again seeking investment in legitimate channels, a large volume of which will be directed into building improvements during the coming year. Most of the local manufacturing plants have now closed down for the winter, but three concerns in the city being in actual operation at this time. The supply of brick is not large and prices are naturally holding firm. Good building brick are being quoted to the local trade at from \$7.00 to \$7.50 per thousand.

The paving brick and sewer pipe industries in this section have enjoyed a prosperous season, and while the volume of business is perhaps a trifle under the early anticipations of the season, a good demand has been found at satisfactory prices during the entire year. A large amount of street improvement work is contemplated for next season and manufacturers are shaping their affairs to take care of an increased trade.

Service Director Cowell, of Toledo, has declared war on sewer tappers who do not do their work properly. Numerous complaints have come in from citizens who have had connections made with sewers, claiming improper jointing of the pipes. In some cases no cement or oakum was used. All sewer tappers in Toledo are under bond for the proper performance of the work. The department will insist that regulations be complied with or the tapper's license will be revoked and the bond held for the completion of the work according to regulation.

A proposition to merge the Business Men's Club and the Toledo Chamber of Commerce is again contemplated. These two business organizations include many brick men and are the most important business associations in the city. A similar proposition was voted down about a year ago.

Bonds were sold at Bowling Green, Ohio, recently to the amount of \$3,000 for the paving of Byall avenue and Palmer avenue. The First National Bank, of Bowling Green, secured the bonds at its bid of par and accrued interest.

A novel plan may be adopted in securing the best model for the \$500,000 municipal building which the city of Toledo proposes to erect. Present plans contemplate throwing the

competition for models open to the architects of the world. Several prizes will be awarded for the best plans submitted. The structure will furnish a market for a large volume of building brick. A building site has already been decided upon.

The Enamel Vitrified Brick Company, with a capital stock of \$100,000, has been incorporated at Toledo by J. J. Urschel, Geo. C. Penny, E. S. Smith, C. E. Holden and F. M. Dotson. The company will build a large plant in Toledo to manufacture vitrified and enameled brick by a new process. It will also produce terra cotta, roof and mantel tile and other products. It is expected that the plant will be in operation early in the spring.

The Fox Clay Products Company, a newly organized concern at Toledo, is now in operation. The concern has a thoroughly modern equipped plant and orders are coming in in good shape.

Officers of the wholesale merchants' and manufacturers' board of the Toledo Chamber of Commerce were last week elected for the ensuing year as follows: President, R. H. Bradley; vice-president, C. J. Stanley; secretary, A. E. Alexander; treasurer, George E. Hardy. The organization made a number of trade boosting trips during the past season which resulted in much benefit to local brick interests.

The prospects for heavy consumption of building brick were never brighter in Toledo than at the present time. Among the important structures which will be erected during the coming year are a \$1,000,000 addition to the large plant of the Ford Plate Glass Company. The concern will also erect 75 new houses for its employes. The Woolson Spice Company will erect an enormous plant at a cost of \$350,000, the contract having been already awarded to A. Bentley & Sons, of Toledo. A \$200,000 building for the Ohio Dairy Company on a newly acquired site is also promised. John H. Mockett, clothier, will build a \$75,000 block, and two new high school buildings will be erected at a cost of nearly \$1,000,000. These and myriads of minor contracts promise to keep the local brick plants working overtime. T. O. D.

Written for THE CLAY-WORKER.

NORTHWESTERN CLAY MEN PLAN STRONG MEETING.

THE OFFICIALS of the Northwestern Clay Association are looking forward to the biggest and best meeting in the history of their association at the annual meeting to be held in Minneapolis, February 1 and 2. The gathering will be at the rooms of the Builders' Exchange, and will be, for the first time, a meeting of two days. All other meetings have been but a single day. It is expected by the addition of a day to include an evening meeting and banquet, instead of the noonday banquet which has been practiced in the past. In addition to this plans are being laid for the best array of subjects which has yet been presented. Ira C. Jones, of the Minneapolis Brick and Tile Company, is chairman of the program committee, and is working hard to formulate a program which shall include matters of interest to every class of members which the organization has. He has secured R. B. Hinkly, of Luverne, Minn., to have charge of the most important subject of tile. Mr. Hinkly is a very important factor in the brick trade of southwestern Minnesota, and as such will be able to command the attention of those interested. He is expected to have something of exceptional value. A topic which is expected to present many ideas of value to the manufacturer is that of finding a market. The importance of this subject will be highly appreciated by those who have experienced the difficulties which beset the manufacturer after he has his plant well running to find a satisfactory outlet for his wares. Closely associated with the subject is another on finding the cost of production. Here again is a matter which commands the interest of every manufacturer, and it is hoped that the subject will be handled so as to present some new ideas

which may indicate where there has been a lack of prosperity. Conducting successful yards in the city and in the country are to be treated upon exhaustively. The question of a proper requirement in crushing test and strength and some of the requirements proposed by building departments of the materials, as well as of their use, will be covered. Whether it will pay to advertise common brick is another matter which is to be handled. Inasmuch as advertising has made for concrete all the business that it has secured, it is expected that some worthy hints will come out in this. A subject which is looked to to bring out a large number of hints of value is one which is to be assigned to a leading architect, architectural possibilities of common brick. This is really a starting point for more and better business, and if the Northwestern Association can develop this subject, as the committee hopes to be able to do, it will mean a material start toward a marked improvement in business.

The Northwestern Clay Association, while a young organization, and still comparatively small, has a good and growing field, and looks forward to developing into an organization which shall be able to extend to its members assistance along lines which will lead to better development of their business and to more net profit. It has been able to overcome certain abuses which have developed through the suspicion which engenders when men of the same line refuse to meet with each other upon common ground, by bringing them together and overcoming the suspicion and establishing that each was trustworthy and honest and meant to do the right thing. It is no longer possible to develop cut-throat competition by carrying tales back and forth between different members as to absurdly low prices being offered. They make their own prices, regardless of the other's charges, but now they know from friendly contact that each desires to get a living figure, and so, when unreasonable competition is reported, they refuse to be drawn into it.

T. WIN.

Written for THE CLAY-WORKER.

FORMING NEW HUDSON RIVER ORGANIZATION.

THE BRICKMAKERS along the Hudson are busy organizing under a new plan drawn up by Senator Brackett. According to the call sent out for a meeting at the Hotel Palatine, in Newburgh, the object is:

"To secure such information as might be deemed beneficial to the members of the association and to advertise and generally to protect and develop the brick manufacturing business of the membership. The membership is to be limited to the brick manufacturers of the Hudson valley from New York to Albany."

Explaining what is intended, one of the leading promoters says:

"There is nothing in the plan of organization to interfere with any man's views, rights or opinions. We have the assurance of Senator Brackett, who drew the plan, that it does not conflict with either the State or national laws. It is not a trust in any sense of the word. The details of the plan have been considerably modified from what they were originally."

W. K. Hammond, of Fishkill, presided at the meeting and about 60 per cent. signed, but unless the membership includes every maker along the Hudson the organization will never be perfected. Adjournment was taken to supply time to secure the other 40 per cent. of the signatures.

Of course all sorts of stories have been afloat regarding this organization, but this is what it is and what it really intends to do. It does not expect to create a revolution in the brick market by which manufacturers will be able to secure higher prices than their competitors. That is impossible, and any attempt to force up the price of Hudson river brick will be speedily overcome by the receipt of brick from other manufacturing localities sufficiently near to claim the metropolis as a market. It will be seen from this, therefore, that the wild talk about a trust that is to control business is simply rot. These men purpose getting together to help each other

in perfectly legitimate ways, and they do not expect to control the market or in any way increase the price of brick above a normal market value.

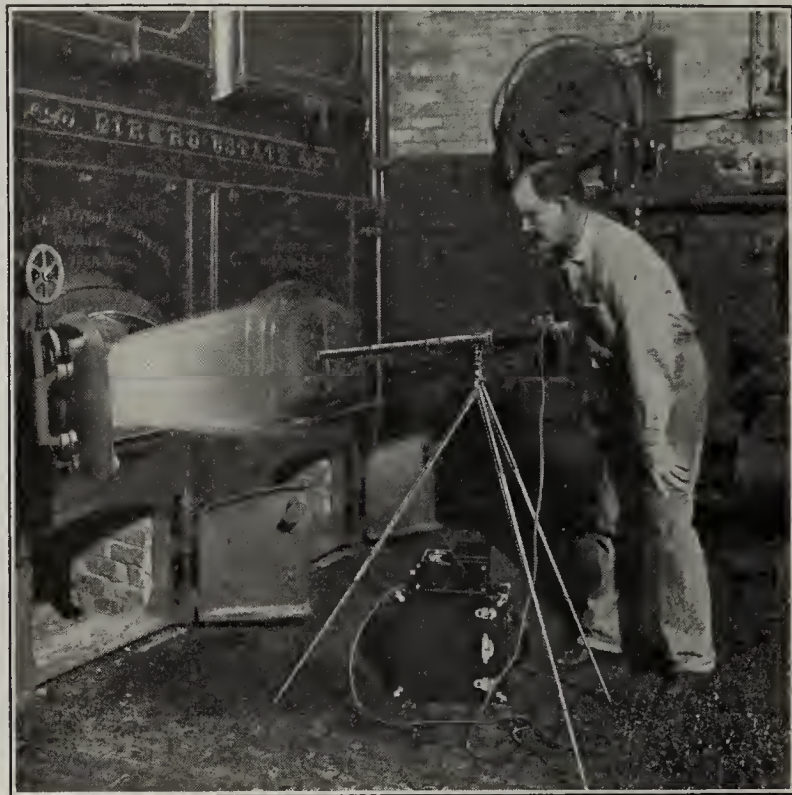
Whether they will secure all the signatures or not is a question which cannot be answered now. But they are progressing and the promoters expect to accomplish it.

A NEW RADIATION PYROMETER.

A NEW TYPE of radiation pyrometer, embracing several new and advantageous features, has recently been devised by Richard P. Brown, of Philadelphia.

There has been a long-felt want for an accurate and simple pyrometer for use in measuring temperatures beyond the limit of the well-known electric pyrometer with platinum thermo-couple. This latter instrument is exceedingly useful for temperatures as high as 2,500 degrees Fahrenheit, but above this point the life of the thermo-couple is very short and its accuracy impaired.

In the case of the radiation pyrometer the sensitive thermo-couple is located at the rear end of the tube or telescope and a concave mirror focuses the heat rays entering the tube on the thermo-couple, which is connected by wire to the milli-



The Brown Pyrometer Permanently Installed.

voltmeter graduated in temperature degrees. The radiation pyrometer, therefore, has no part directly subjected to the high heat to be measured, and there is in consequence no part to be destroyed by the furnace gases or high temperature. The radiation pyrometer has also the advantage of the readings being instantaneous, the slightest changes in temperature being shown immediately.

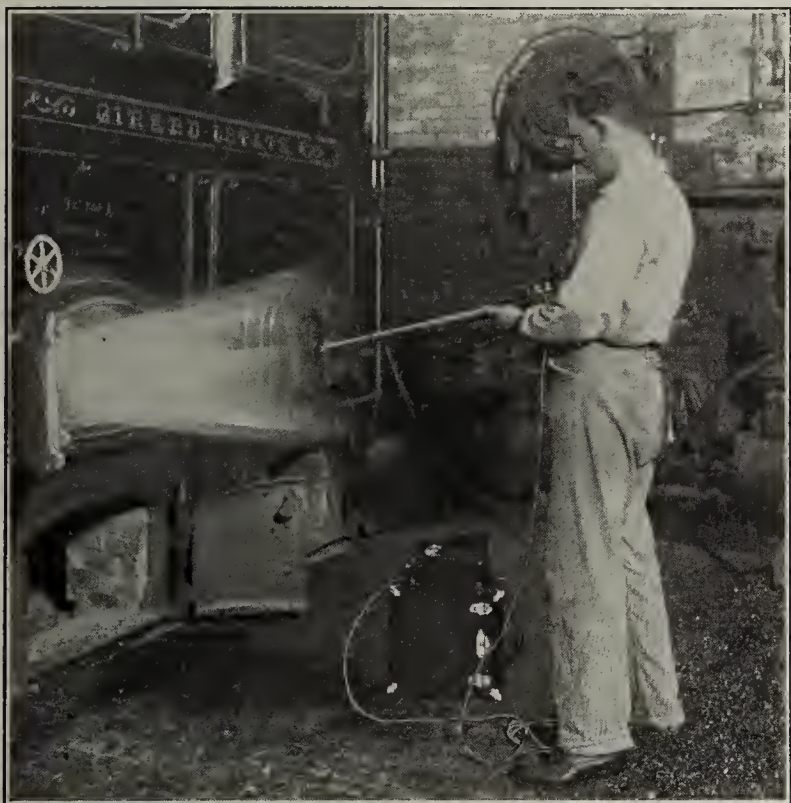
Radiation pyrometers heretofore manufactured have been of two types, the adjustable focus and the fixed focus. The imported type of radiation pyrometers using an adjustable focus have been too complicated for general use, and the fixed focus instruments have had no means by which the operator could tell whether or not the telescope was too far from the furnace opening or heated body. In the radiation pyrometer with fixed focus, to secure a correct reading of the temperature, the pyrometer tube or telescope should not be more than 30 inches distant when the furnace opening is 3 inches in diameter, or 60 inches distant when the door of the furnace is 6 inches in diameter; in other words, the pyrometer telescope or tube should not be distant more than ten times the diameter of the furnace opening, or piece of steel, the temperature of which is to be measured. As long as the pyrometer tube was within these distances the temperature could be read correctly, but to determine this the distance had to be

measured. There has also been no means heretofore with a fixed focus radiation pyrometer of being assured that the tube or telescope was pointed correctly at the furnace opening.

In the new Brown radiation pyrometer with fixed focus a finder somewhat similar to those used on kodaks has been placed on the tube, and by means of this the tube can be readily pointed directly at furnace openings. It also acts as a measure of distance, and it is only necessary that the bright red of the furnace opening takes up the whole view in the finder. If some of the dark outside wall of the furnace is showing around the bright red opening the tube is too far distant and should be moved closer until the bright red only is showing. It is impossible for errors to occur with this new feature, and the instrument is accurate under ordinary working conditions within 1 per cent., or 30 degrees, at 3,000 degrees Fahrenheit.

The instrument is calibrated for measuring the temperature of a black body or the temperature of the walls or parts inside of furnaces which are practically black bodies. In using the pyrometer for measuring the temperature of molten metals or highly polished surfaces which reflect a correction is made.

Another new and particularly desirable feature of the



Using Portable Pyrometer.

Brown radiation pyrometer is in the collapsible tube, made like a telescope, which permits of the pyrometer tube, indicator, tripod and wiring being fitted in a small leather carrying case weighing complete only 15 pounds. This feature is particularly desirable to engineers and superintendents, who may have to take the pyrometer from one point to another occasionally for tests.

In using a radiation pyrometer focused on a brick kiln or furnace it is frequently inconvenient, if tests of long duration are to be made, to leave the door or opening open. A fire-brick tube is therefore inserted in the opening and projects into the kiln or furnace, the inside end of the tube being closed. The pyrometer telescope is focused on the inner end of the fire-brick tube, and for permanent installation a bracket is used instead of the tripod to bolt on the wall and hold the pyrometer tube.

The instrument will be adaptable particularly for measuring the temperatures about a blast furnace plant, in the open hearth furnaces of steel works where excessive temperatures are carried, in brick kilns for burning fire brick and very refractory materials, in rotary cement kilns where the temperature is running about 3,000 degrees and must be measured 20 feet inside the furnace, and by engineers in testing the temperature of boiler furnaces, and in research work. In fact,

there are any number of operations where high temperatures are carried and must be measured where this instrument will prove particularly adaptable.

This new radiation pyrometer is being placed on the market by the Brown Instrument Company, of Philadelphia, with offices in Pittsburg and Chicago, and patents have been applied for covering the advantageous features embraced in this instrument.

Written for THE CLAY-WORKER.

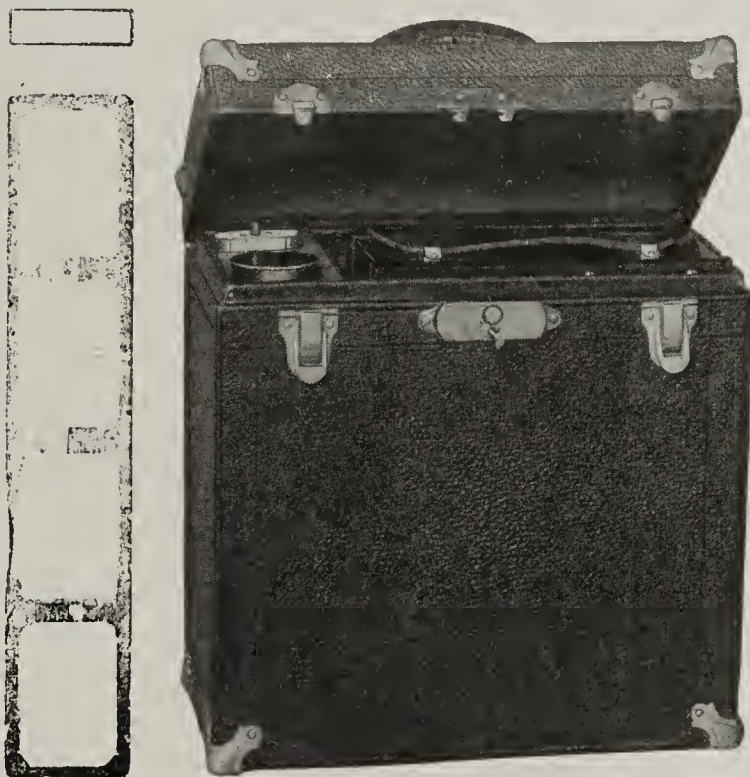
THE CHICAGO SITUATION.



THE PRESENT condition of the stock market has been in no wise reflected in the building market during the past month. On the contrary, there is great activity at present and in prospect, and building ventures seem not at all difficult to finance, according to reports, even if trading on 'Change is dull to a point of stagnation.

There is a particular stir in the downtown district, and many new and imposing office buildings, in addition to those already discussed, are being talked of or actually announced.

The fact that the new building code is pending before the city council and is being held back temporarily until the ques-



Complete Pyrometer in Handy Carrying Case.

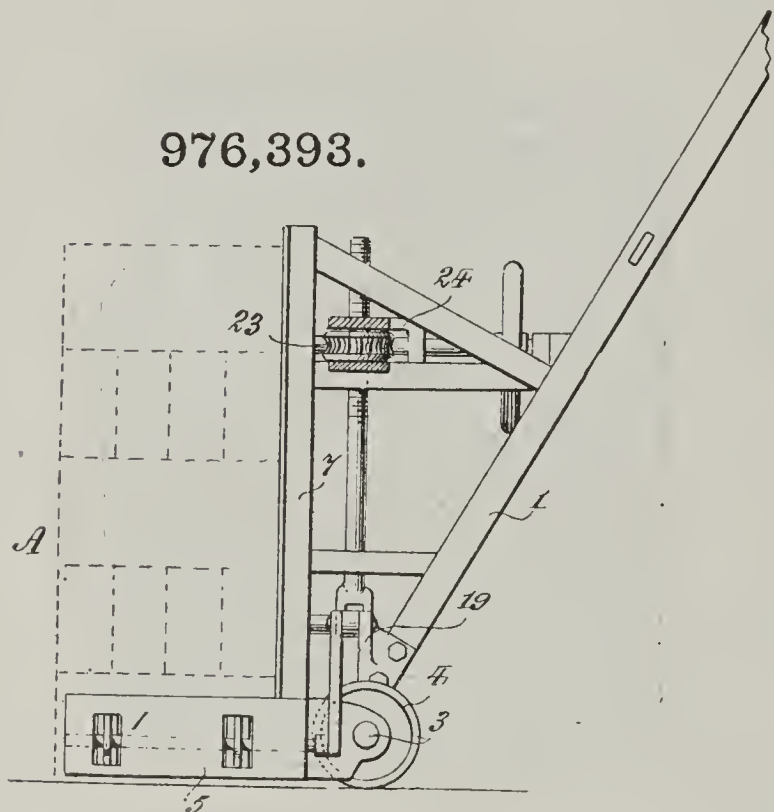
tion of whether or not the height of downtown office buildings should be restricted to 200 feet—about 16 stories—or not, has added considerably to the keen interest centering in this section of the building world. At first it was urged that the limiting of the height of buildings would result in spreading the downtown district further outside of the so-called "Loop" boundary, and do much to relieve congestion and improve general business and industrial conditions. While it is not likely that a restriction would result in much spreading out beyond the "Loop" confines just at present, there being many blocks in this district which still remain the sites of old-fashioned structures of from five to eight or ten stories, it might result in a good many more buildings of the sixteen-story variety down town. Whether the situation raised by the city council and the proposed building code has had a stimulating effect or not cannot definitely be said, and yet it is reasonable to suppose that it has, for if the limit is enacted a few months of grace will be allowed probably before it takes effect, and there will be a race to get a number of skyscrapers completed before the fatal date, should one be set. Latterly, however, the talk for the limitation has not been so loudly approved as it was just at first, and it may be permitted to slip into oblivion until the next revision of the code.

One of the proposed new buildings which will be "hustled"

some if the limitation is made a fact by the city council will be the proposed new Otis building at the southwest corner of LaSalle and Madison streets. It is planned to raise this to a height of twenty-one stories. It will have a frontage of 190 feet on LaSalle and 111 feet on Madison street. It will face the LaSalle Hotel, and the cost will approximate \$3,000,000. It is expected to be one of the most handsome structures in the downtown district. According to present plans work will be commenced about May 1, although the passage of an ordinance unfavorable to such a structure might accelerate matters a bit.

Exceeding even this building in importance is the proposed new Insurance Exchange building, also a twenty-one-story building, which will be the largest skyscraper in the city and exceed \$5,000,000 in cost. It is to front on Sherman street and extend west along Jackson boulevard to Fifth avenue. The frontage is 202 feet on both thoroughfares. The exterior will be entirely of white enamel terra cotta and white enameled brick, and is intended to accommodate all the insurance brokers who now office along LaSalle street.

The Hamilton Club is going ahead with plans for its new home in Dearborn street, near Madison, across from the Tribune building. Still further south—at the southeast cor-



Portable Brick Handling Device.

ner of Fifth avenue and Polk street—the Marshall Field estate is planning the erection of a ten-story building of large dimensions to be leased to the Chicago Paper Company.

The Schoenhofen Brewing Company contemplates the construction of a theater and office building to extend along the south side of Monroe street between Clark and Dearborn streets from the Rector building on the west to the Inter Ocean building on the east. It will be twenty stories high and cost \$2,000,000.

The proposed Monroe building at Michigan avenue and Monroe street promises to be a most handsome structure if the present plans are carried into effect. It will be fourteen stories high and vary from the conventional office building by boasting a gabled roof and other decorative features. The two lower floors will have an exterior of polished granite, with gray terra cotta for the upper floors.

Building activity is by no means confined to the downtown district, however. Apartment buildings large and small and residences in great numbers are being constructed and planned, and there is every prospect for a good winter. There is even a chance that the record for last year—itsself a new banner on the walls—may be broken if December ends as well as it has begun.

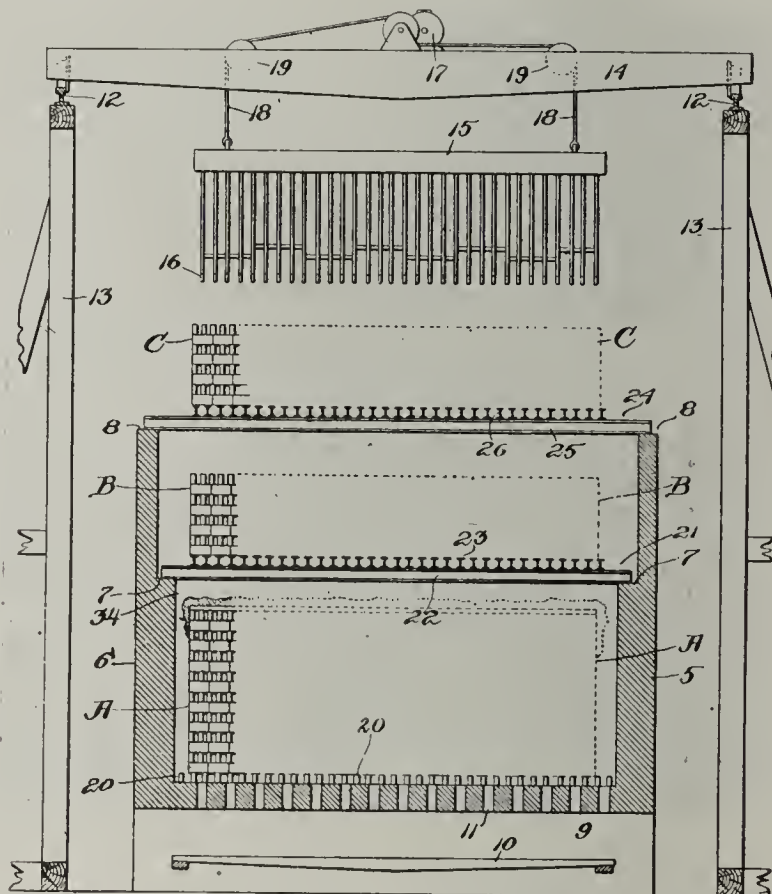
SCRIP.

RECENT PATENTS.

Material for this department is compiled expressly for THE CLAY-WORKER by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F street, Washington, D. C., and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same, should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cents.

Brickmaking Apparatus: Jonathan P. B. Fiske, of Newton, Mass., Assignor to Raymond C. Penfield, of New York, N. Y. 974,782. Patented November 8, 1910.—The invention relates to a system of handling bricks and comprises apparatus by which bricks may be manufactured and handled entirely by machinery, with great expedition and minimum loss. Its main object consists of drying bricks on a burning and cooling kiln, thereby using all the waste heat, and producing superior bricks, as will be apparent from the following description: The invention resides in steaming and drying green bricks by placing them on a burning kiln and transferring them in segregated bodies while the kiln is still burning or cooling, said bricks being transferred in such order or se-

974,782.



Cross Section of Kiln, with Crane in Position.

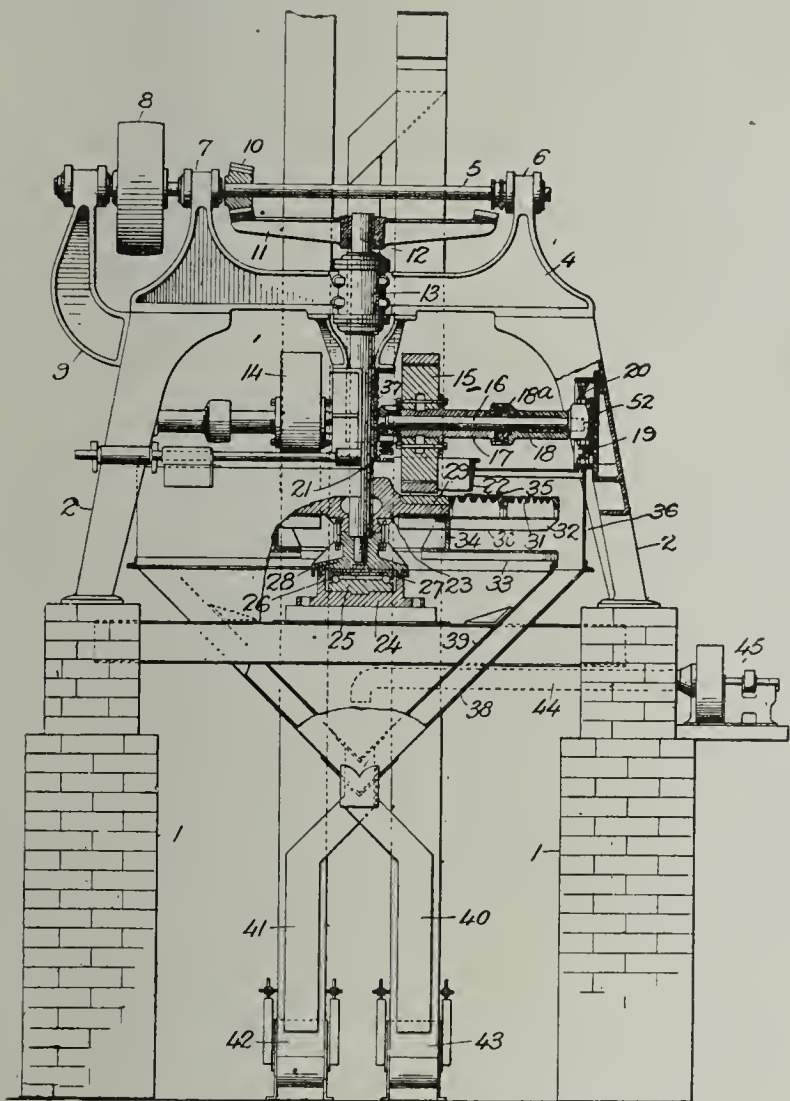
quence that the bricks next to the burning bricks are already partially dried and the entirely green bricks are above these partially dried bricks and get the benefit of the moisture or steaming process derived from the intermediate partially dried bricks. This not only greatly facilitates the drying process, but it prevents the cracking of the bricks due to too sudden drying, and it accomplishes the drying by the heat of the burning kiln and the cooling kiln directly applied to the green bricks. To this end a rack is provided, supported by a traveling crane in such a manner that the stacks of bricks may be readily transferred from one kiln to another. The illustration shows a cross section of the kiln with the crane in position.

Portable Brick-Handling Device: Raymond C. Penfield, of New York, N. Y. 976,393. Patented November 22, 1910.—This invention relates to a truck for picking up and carrying stacks of bricks. As shown in the illustration, it comprises a frame to which is pivoted a pair of clamping members (5). These members, by means of a lever mechanism are connected through the worm gear to a hand wheel by means of

which the clamping members may be drawn together so as to grip the bottom layer of a pile of bricks.

Dry Pan: Raymond C. Penfield, of New York, N. Y. 974,816. Patented November 8, 1910.—This invention relates to a rotary dry pan for grinding and pulverizing clay. The main features of the invention consist of a vertical shaft (12) supported upon thrust bearings and carrying a rotary bed or grinding base (23). Centrifugally arranged around this bed are primary screens (30 and 31), and beneath these is arranged a secondary screen (33). The material is crushed by the rollers (15) and is thrown by centrifugal force over the primary screens. Some of it falls through onto the secondary screen and the fine portion which goes through this is collected for use. The coarse portions fly from the outer edge of both screens into a hopper (38), whence they are carried by a conveyor and fed again through the machine.

974,816.



The New Penfield Dry Pan.

Pottery Former: Thomas Lunn, of Decatur, Ill. 975,144. Patented November 8, 1910.—The object of this invention is to produce a device for shaping and forming reinforced hollow pottery without the use of a mold. To this end the invention consists in the provision of a vertical post (U) to which are pivoted rotary scrapers (S, S') having a shape corresponding with that of the article to be made. The inner of these scrapers forms the sand core into the desired shape, while the outer one molds the outer surface of the vessel being formed.

The following patents relating to the clay industry have also been granted during the last month, but lack of space prohibits a detailed description. Complete printed copies of these patents will be furnished for 10 cents each:

No. 974,817. R. C. Penfield. Dry pan. November 8, 1910.

No. 974,818. R. C. Penfield. Dry pan. November 8, 1910.

No. 974,905. William A. Mohrbach. Clay loader and scraper. November 8, 1910.

No. 974,969. William T. Hurd. Brick kiln. November 8, 1910.

No. 975,441. The Ceramic Supply and Construction Company. Screen. November 15, 1910.

No. 975,502. Jacob Bensing. End cut brick machine. November 15, 1910.

No. 976,243. Frank Zagelmeyer. Brick ejecting mechanism. November 22, 1910.

No. 976,294. Raymond C. Penfield. Brick handling machine. November 22, 1910.

No. 977,009. Adolph W. Holl. Clay and sand screen. November 29, 1910.

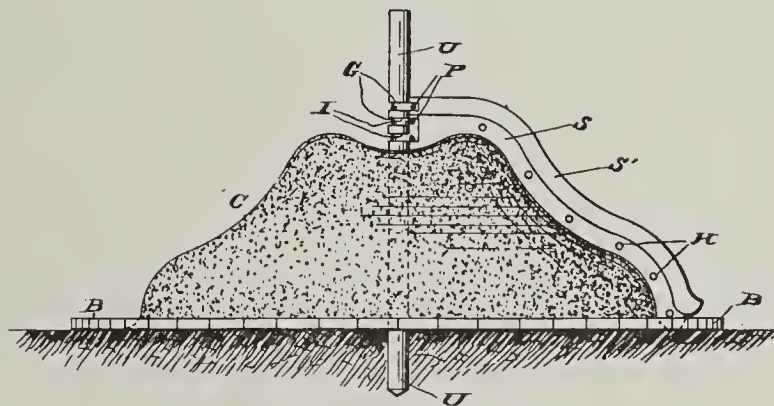
No. 977,610. The American Clay Machinery Company. Device for handling bricks. December 6, 1910.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

SO FAR THE winter has been the severest in some years since it began. For two weeks snow has not melted in the middle of the day excepting in the most unexposed places. Every few days there is an additional fall and weather prophets declare that the cold will not decrease until after the turn of the year. This means that building operations are at a standstill. Very little can be done outside and inside much care has to be exercised, especially in using

975,144.



Thomas Lunn's Pottery Former.

mortar or any other material which freezes. Bricks are suffering along with the rest, and in instances it has been possible to buy both Hudson rivers and Raritan rivers at \$4.75, and \$5.25 is the outside figure for Hudson rivers. Raritans do not seem to have any outside figure, so far as the New York market is concerned. These figures are sufficient evidence that the brick market is no longer of much importance so far as present sales or prices are concerned.

What will come of the apprehended difficulty among the builders it is difficult to imagine. Only one thing is sure—the workmen are evidently looking for some real or fancied provocation to strike. It is by no means certain that they will strike, nor is it, on the other hand, by any means certain that they will not strike. Consequently the situation is much mixed. For the time, at least, the troubles are settled, but it is certain as the thing can be that ultimately there will be a recurrence and eventually a strike will result. The workmen are determined to secure some provocation to ask an increase in wages and unless something unforeseen occurs to change the current of their thought next May is likely to be fraught with dire consequences to the trade.

All shipping of brick, excepting by train, has ceased. The river is closed to navigation and barges are tied up waiting the return of milder weather. But there is an ample supply of brick in the market for the opening and always a few come forward during the winter by rail. The supply left up the river is variously reported, but it seems that 400,000,000 is not an exaggeration. The quantity which will be used next year is questionable, but probably it will require all those to start business and many more to carry it forward.

BURTON.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Combination Scissors Complete.

Editor THE CLAY-WORKER:

I received by mail today the combination scissors, for which I thank you very much. This is the most complete instrument that I have seen for a long time, and I think I shall find it very useful.

Philadelphia.

Very truly yours,

O. W. KETCHAM.

Expressions of Regret.

My Dear Mr. Randall:

It is with deep regret that I learn of the passing away of Mr. Billingsley, a valued charter member of our Association and contributor to the Clay-Worker. A splendid type of good citizenship, father and friend, he will be sadly missed by those near and most dear to him.

Extend deepest sympathy to the family in their loss.

Very truly yours,

Rochester, N. Y.

W. H. H. ROGERS.

Lost a Personal Friend.

FRIEND RANDALL:

Until I read Father Billingsley's obituary notice in the November CLAY-WORKER I had no intimation even of his approaching departure, and I felt I had personally lost a friend. We who have given the best of our lives to the work of which he was the father more than any others realize what a great influence he has exerted, and I for one know that he did much for the cause of farm drainage in general and for tile-makers personally. Accept my sympathy as from one who also has lost.

Yours truly,

Cedar Rapids, Iowa.

DANIEL W. STOOKEY.

A Tribute to "Father" Billingsley.

MY DEAR CLAY-WORKER:

For some time after receiving the newspaper from your office giving notice of Father Billingsley's death I was too depressed to write cheerfully and felt I could not write any tribute to his honor at all commensurate with his character or the good work he had done, and that there were many others who knew more of his daily life that were far better fitted in every way to do this. So I waited for the next issue of THE CLAY-WORKER. When it came I read all the letters of condolence and approved of all that was said in his praise, but was disappointed in that none had made any reference to what I had supposed was the most useful period of his life; that is, when he was publishing The Drainage Journal. Then it struck me that these writers belonged to a later period and that a generation had passed away since Brother Billingsley and I met and worked in conventions. Who of that time are left to speak his praises? I certainly should say something to show at least my appreciation of his valuable work.

To many it would seem a small matter to publish the 6x9-inch Drainage Journal, and one can give no conception of its value until they can see that at that time there was great need for just such a journal. The philosophy of under-drainage was scarcely known. It had to be developed by practical

work. The making of drain tile was a new art in many respects and was in a state of remarkable evolution. The long drying sheds for summer use only were giving place to compact factories, in which the tiles were dried by steam. Many forms of kilns were being tried by men best skilled in the pottery art, and new soft mud and plunger machines were giving place to the stiff clay auger machines. There were three industries that promised to be of immense benefit to the country—tile making, tile drainage and tile machinery manufacturing—that had no representative in journalistic literature. Brother Billingsley saw the opportunity to make himself useful and he did so by publishing the first journal in this country at least especially devoted to these industries. The journal was not filled with articles clipped from agricultural papers. There were very few of these. There were articles that had been read before conventions that he had been very active in forming, and a great many letters from his own correspondents giving valuable information. These, with an account of his own travels, visiting farms and factories, made the journal interesting and profitable to those who were progressive. I feel more like applauding his beneficent acts than mourning his departure.

"I know transplanted human worth
Will bloom to profit elsewhere."

But do not for a moment think that your great sorrow has not cast its shadow over me. Sincerely yours.

GEO. S. TIFFANY.

Tecumseh, Mich., December 9, 1910.

Maryland Brickmakers Busy.

MY DEAR RANDALL:

Yours just received. I am glad to say and report great progress in bricks and brickmaking here. Better bricks are being made and the demand great. We shall exceed former years in our output by at least a few millions.

This is about the same as far as I can hear from our fraternity over the State, which is very encouraging. Better bricks and better prices is the most encouraging feature that brings joy and gladness to the brickmaker's heart.

As to my being with you at Louisville, Ky., February 6 to 11, 1911, it is too far in the dim future to tell. I will pass my seventy-eighth anniversary should I live to see February 2 next—Groundhog day. So you see that I am growing old in years, but am active in mind and body yet.

Very sincerely yours,

VICTOR CUSHWA.

Williamsport, Md., December 5, 1910.

A North Carolina Brick Plant.

Editor THE CLAY-WORKER:

Some time ago you wrote me asking that I send you photographs of our brick plant. I have been reading THE CLAY-WORKER for about a year and have never seen anything in it as small as our plant. Thinking it might be of interest to some of the larger manufacturers, I will try to give you a description of our small plant. We have no photographs and the plant is so strung out that a photograph would not give any idea of its size. We have J. C. Steele & Sons' No. 2 outfit. It is run by the same power that runs a cotton gin. The machine sets in the angle formed by the gin building and engine room and parallel to the engine, both being driven from the same shaft. We have the automatic end cut.

About twenty feet from the far end of the delivery table is the north end of the first dry shed. There are three of these about one hundred feet long standing parallel one to the other. The sheds are built by placing two lines of posts about four feet high and twelve feet apart in the lines, the lines being twenty feet apart. Just in the center we place another line of posts about ten feet high. After making a

one-by-six piece from the top of the high post to the low post there is a line of poles placed over each line of posts. Half way between there is another line of poles.

For covering we use twelve-foot one-inch boards any width and of any quality, mostly oak culls. These are laid single, joints not broken. All water getting on the under side, either at joints or defects, holds to the planks until it gets to the poles and then drops to the ground between the row of pallets. The planks are nailed at the top with only one nail. This leaves the planks so we can lap and pile them up at the lower end in clear weather. In clear weather the brick can be removed from the sheds to the kiln in three or four days after being made.

There are fifty-two brick placed on a pallet and are trucked two pallets at a time on steel patent open yard trucks to the sheds and deposited four rows to the shed. The pallets are placed about twelve inches apart. The trucker is charged never to place a pallet under a pole. We have not lost a wheelbarrow load of brick in a season. We seldom make over 20,000 a day.

We work nine men and two boys beside the burners. The kilns, which are common clamp style, are located at the south end of the sheds and are right angle to the sheds, one at the rear of the other. So as to get the brick to the farthest end of the first kiln they must be trucked about 280 feet.

Our sales are principally by rail and are for hard brick, for which we get \$8.00 per thousand f. o. b. car in nearby towns. As the trade calls for hard brick, we stop when we get the first kiln made in the spring until it is burned and cooled. Then we strip it of all salmon brick and set them in the next kiln, and so continue through the season.

Catawba, N. C.

POOVEY & LEONARD,
Per Z. V. LEONARD.

MAKING ENAMEL BRICK.

Editor THE CLAY-WORKER:

I have been looking over the August number of THE CLAY-WORKER and I notice a letter on enamel brickmaking and how they are made in England. The writer has either never been in England or it is a long time since he was here, as I notice that he says the best way to make enamel brick is to burn them but once, and he also states that they are made on the one-burn principle here now. I am going to contradict him on that point, for nine out of ten works here in England make on the two-burn principle, and they find it the most profitable. One reason is, they get a better quality and a greater quantity of best bricks; by the two-burn process they get a more even face. The reason they get a more even face is that by burning the brick first they burn the oil used on the clay instead of brushing it off with a brush and clean water. Brushing the clay brick as soon as passed gives the face an uneven and wavy face which you don't get by the two-burn process. If you let the brick dry and dry the oil into it there is danger that the enamel will peel off, as the oil is still there. Now I can say from personal experience that no man can give as good a result on a raw clay brick as can be got on a burnt brick. Keep your clay fine and put the right body of glaze on and then the burnt brick cannot be beat for evenness of face and quantity of best goods. Get your body coarse, and then you might as well never attempt to make enamel brick. I have a brick that was made at the Tiffany Company's works at Momence, Ill. I have let several large enamel brick-makers see it, and they are all of the same opinion, that the quality is equal to anything made in this country, if not better. I have never seen a better enamel brick in all my career of brickmaking, and it is made on the two-burn principle, made very fine and on the semi-dry principle. Yours, a well-wisher,

H. W. HARDY.

"THE PROOF OF THE PUDDING."

ESTABLISHED 1898.

Tate, Jones & Co., Inc.

ENGINEERS & MANUFACTURERS.

WORKS

LEETSDALE PA ON P. F. W. & C. R. R.

GENERAL OFFICES,
EMPIRE BUILDING,

Pittsburg, Pa., Nov. 29, 1910.

COMPLETE FUEL OIL &
NATURAL GAS BURNING
INSTALLATIONS

OIL BURNING EQUIPMENT
FOR OCEAN STEAMSHIPS,
RIVER BOATS,
& HARBOR TUGS

FURNACES FOR
MELTING, ANNEALING,
TEMPERING, HEATING, ETC.
BURNERS, HEATERS,
PUMPS, ETC.

OIL AND GAS WELL
PUMPING POWERS.

IN REPLY PLEASE REFER

"The Clay-Worker,"

Indianapolis, Ind.

Gentlemen:

We have been quite pleased with the number of inquiries we have received from the advertisements we have had in two issues of The Clay-Worker. Notwithstanding the statements made by some of your competitors we believe we are in the best medium for reaching this class of business.

Yours very truly,

TATE, JONES & CO., Inc.

J. M. Tate, Pres.

JMT-W.



OFFICIAL ANNOUNCEMENT.

Twenty-Fifth Annual Convention of the National Brick Manufacturers' Association, to Be Held at Louisville, Ky., February 6 to 11, 1911.

IN RESPONSE to an urgent request by many members of the association for a central point of meeting, it has been determined to hold the Twenty-fifth annual convention of the National Brick Manufacturers' Association at Louisville, Ky., February 6 to 11, 1911. It is predicted that the attendance will exceed that at Pittsburg, which was the largest in the history of the association, for Louisville is easily accessible from all sections of the country. It is an attractive city, affording many attractions for amusement seekers and has unexcelled facilities for convention work.

REDUCED RAILROAD RATES, on the certificate plan, have been granted by the Southeastern Passenger Association which covers all the territory south of the Ohio and east of the Mississippi river, and it is anticipated that the other traffic associations will concur. As most of our members understand, having in past years purchased tickets on the certificate plan, to secure the reduced rate it is necessary to pay full fare going, take a certificate for same, which when vised by the railroad official at Louisville, will entitle them to a return fare at one-half the rate paid going, making a reduction of one-fourth of the total round trip fare.

SIDE TRIPS OF EXCEPTIONAL INTEREST may be arranged for. Most of those attending will doubtless want to visit the famous Mammoth Cave, located on the Louisville & Nashville railroad some ninety miles from Louisville, and accordingly arrangements will be made for an excursion there Saturday the 11th. A special train will be provided and the Mammoth Cave officials will furnish guides and every convenience to make the trip a pleasant one. Quite a number of the members have expressed a desire to make a side trip after the convention to New Orleans, and arrangements will be made for special rates and accommodations for an excursion South if a sufficient number of the members signify a desire for it. It has also been suggested that those desiring to extend their winter vacation might find delightful recreation in a trip to the Panama Canal. There is a line of fine ocean steamers plying between New Orleans and Colon, which make the trip in five days each way. Further particulars will be furnished those who care to consider such an outing.

THE CONVENTION PROGRAM which is in course of preparation, will provide for a series of instructive papers on the most important phases of the business. Any member desiring information upon any particular feature of the business is requested to advise the Secretary, who will endeavor to have same incorporated in the program. The chief aim and purpose of the Association is the dissemination of information among the members. This is accomplished chiefly in two ways: First, the discussions during the sessions, and second, the informal chats or button-hole talks between sessions. The latter is perhaps really the greatest source of practical information, for many who are well in-

formed dislike to speak in public, but will talk freely and forcefully in personal chats or lobby talks.

THE HOTEL ACCOMMODATIONS are the very best. The Seelbach will be headquarters, and is in the same high class as the Fort Pitt, with which the members generally were so well pleased last year. The following are the rates agreed upon, European plan:

Single rooms, without bath, for one person, \$2.00 and \$2.50 per day. For two persons, \$3.00 and \$3.50.

Single rooms with bath, for one person, \$3.00 per day and upward. For two persons, \$4.00 per day and upward.

For each additional bed put in either of the above rooms, the charge will be \$1.50.

The proprietors of the Seelbach operate two other hotels in the city, THE OLD INN and THE VICTORIA, each of which offer excellent service at lower rates, being steam heated and having hot and cold running water in each room; the OLD INN, corner Sixth and Main streets, makes a minimum rate on the European plan of \$1.50 and up. The rates at the VICTORIA are \$1.00 and up. Those desiring to order reservations are requested to address The Seelbach Hotel Company, Louisville, stating date of intended arrival, and the character of accommodation desired, and the rates they want to pay.

CONVENTION SESSIONS will be arranged about the same as in former years. The first N. B. M. A. session will occur Wednesday afternoon. Ample facilities will be provided for all the affiliated bodies and for the display of specimen brick and other clayware, models of machinery and appliances. The meetings of the National Paving Brick Manufacturers' Association will be held in the Assembly Hall of the Seelbach Hotel, beginning Monday morning, February 6. The business sessions of the Building Brick Association will be held in the Red Room of the Seelbach Hotel beginning Tuesday morning. The association will hold a public session in the convention hall Thursday forenoon. The National Clay Machinery Association will hold its sessions in the music room of the Seelbach Hotel beginning Tuesday morning. Members of the association or those who intend to join the association at Louisville and desire information on any particular phase of the business are requested to communicate with the secretary at Indianapolis, who will be pleased to furnish information relative to the requisite of membership, etc.

THE EXECUTIVE COMMITTEE.

WILL P. BLAIR, President.

THEO. A. RANDALL, Secretary.

CONVENTION DATES.

The Illinois Clay Manufacturers' Association will hold its thirty-third annual convention at Chicago, January 17, 18 and 19, 1911. Headquarters will be at the Palmer House. The sessions will be held in the assembly room of the hotel, adjoining which will be an exhibition room for the display of clayware, etc. The local entertainment committee will give a complimentary banquet to visitors and arrange sight-seeing parties. For further particulars, address George H. Hartwell, secretary, 303 Dearborn street, Chicago.

The Iowa Brick and Tile Association will hold its annual convention at Boone, Iowa, January 25 and 26, 1911. The first day's sessions will be held at Boone, and the next morning the members will be conveyed by special train to Ames, where the Ceramic School will be inspected and the program carried out to completion. Secretary C. B. Platt, Van Meter, Iowa, will mail programs when complete to those requesting them.

The Wisconsin Clay Manufacturers' Association will hold its convention at Milwaukee, Wis., February 1, 2 and 3, 1911. Headquarters will be at the St. Charles Hotel, where arrangements will be made for an exhibit of clay products, and a ban-

quet will be given. The secretary, Prof. Samuel Weidman, Madison, Wis., will give particulars on request.

The Northwest Clayworkers' Association will meet in Minneapolis, February 1 and 2. The sessions will be held in the rooms of the Builders' Exchange. Ira C. Jones, Minneapolis, is chairman of the program committee and will be glad to give information regarding program, etc., to those desiring same.

The National Paving Brick Manufacturers' Association will hold its annual convention at Louisville, Ky., February 6, 7 and 8, 1911. The meetings will be held in the assembly room of the Seelbach Hotel. An interesting program is being prepared. Copy of same can be obtained by addressing Will P. Blair, secretary, Board of Trade Building, Indianapolis.

The Building Brick Association of America will meet in annual convention at Louisville, Ky., February 7 and 8, 1911. The sessions will be held in the Red Room, Seelbach Hotel. For program, etc., address Parker B. Fiske, secretary, Flat-iron building, New York City.

The National Clay Machinery Association will hold its annual meeting at Louisville, Ky., February 6 and 7, 1911. For program, etc., address W. N. Durbin, secretary, Anderson, Ind.

The American Ceramic Society will meet at Trenton, N. J., February 14, 15 and 16, 1911. Program will be published in a subsequent issue of THE CLAY-WORKER. As Trenton is one of the chief pottery centers of America, it is anticipated that there will be a large attendance of ceramists, and the meetings will be of unusual interest. For further details address Prof. Edward Orton, Jr., secretary, Columbus, Ohio.

The National Builders' Supply Association will meet in annual convention at Chicago, Ill., February 21 and 22, 1911. Congress Hotel Annex will be headquarters. Further particulars can be had from Secretary James W. Wardrop, 404 Frick building, Pittsburg, Pa.

TRADE LITERATURE.

THE ARNOLD-CREAGER COMPANY, of New London, Ohio, is mailing the trade its latest catalogue, giving special inducements to the clayworkers in the purchasing of their brick molds, wheelbarrows, trucks and supplies for spring delivery. The catalogue contains sixteen pages of interesting information, the last page covering the announcement that Mr. Frank McClellan, a well-known salesman in the clayworking field, is now in full charge of their road selling force.

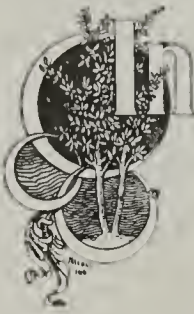
DEAN BROS.' STEAM PUMP WORKS, of Indianapolis, Ind., have recently published their catalogue No. 83, which gives complete information relative to boiler feeders and pressure pumps. Every clayworker should have one of these valuable pamphlets. Write to Dean Bros.' Steam Pump Works, Indianapolis, Ind.

THE STEVENSON COMPANY, of Wellsville, Ohio, a company well known for its high grade of clayworking machinery, has published an attractive catalogue for distribution at various conventions and for circularizing the trade. It is one of the best catalogues that company has ever published and is printed on a high grade white enameled paper, with an embossed gray paper cover. The illustrations and descriptive matter give interesting information relative to the Stevenson pans, sewer pipe presses, friction clutch pulleys, elevators, screens, pug mills, mixing machines, clay conveyors and feeders, bearing stand for line shafting, crushers and engines, boilers, winding drums, adjustable pipe trucks, prong and platform trucks, offbearing trucks, wagons, barrows, double chain screw hoisting machines, etc. It is something worth while, and the Stevenson Company will gladly furnish anyone with this catalogue on request.

THE MANUFACTURE OF ROOFING TILE is the title of a book published recently by Maclaren & Sons, Ltd., London, England, publishers of the Brick and Pottery Trades Journal. It contains twelve chapters, each treating thoroughly, in turn, the subjects: Patterns of roofing tiles, materials used and their preparation, grinding and tempering, hand molding, making tiles by machinery, pressing, drying, kilns, setting and burning, storage and packing, staining and glazing, and includes a number of tables. The price of the volume is 50 cents, a very low price, considering the matter it contains. The same publishers also have for sale for the same price an interesting volume styled The Glazer's Book.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.



IN THE RECENT report of County Engineer George C. Diehl he suggests that all state and county highways be paved with brick or block pavement within six miles of Buffalo. The remainder he recommended should be paved with asphalt macadam. It is the consensus of opinion that Engineer Diehl's suggestion for the pavement of brick is an excellent one, particularly if it is of the properly vitrified brick on a concrete foundation, with an upper compressed sand cushion and a cement filler so composed that there shall be no widening of the bricks nor chipping off of the edges under constant impact of traffic.

Buffalo records show that there is a marked increase in the use of brick in its buildings of factories and hotels and business conditions in the building line are good. There is no complaint among the brick men of any slack in orders, and several big contracts have just been finished. Building permits for December are large, and there is the keenest enthusiasm over the prospects for the coming spring.

In the last month's Buffalo letter attention was called to the plans of the local Chamber of Commerce for a new department—its Bureau of Industries. This bureau is now established under the management of George V. Horgan and has made a fine record for its first month of existence.

Already it has brought to Buffalo four big concerns, who will build entire new factories in the spring. They are the E. A. Kline & Co. cigar manufacturers, formerly of Cleveland, who are to build on the East Side; the Philadelphia Quartz Company, who will erect a \$100,000 plant on a five-acre tract on Indian Church road, and the big fruit preserving concern of Wagstaffe, Ltd., of Hamilton, Ont. Much brick will be used in these plants.

That brick is the favorite building material for the progressive hotel men of the city is evident from the progress noted last month and announcement is now made that the Iroquois Hotel, which is now under the management of the firm of Woolley & Gerrans, is to build an entire new addition. Brick and terra cotta will be used, it is expected, in the construction.

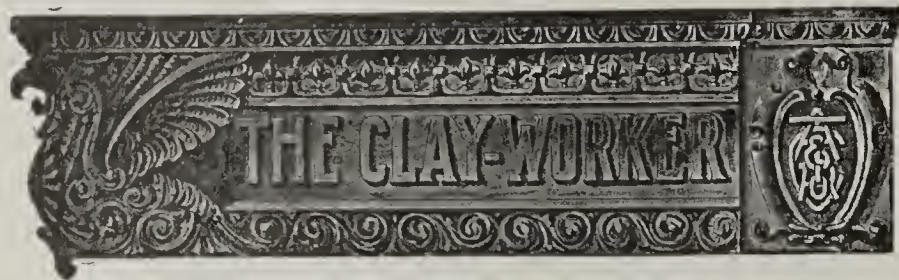
Trouble over the awarding of a contract at Niagara Falls, N. Y., is reported, but the outcome is not yet decided. Cosana L. Dauer, a contractor, bid on the construction of a new sewer along the New York Central's tracks in the north end industrial district of Niagara Falls, the work being let by the Board of Public Works to the Read-Coddington Engineering Company for \$44,500. Contractor Dauer has secured an injunction restraining the city authorities from executing the contract on the ground that they are the lowest bidders, their bid including only brick, while the Read-Coddington Company bid on both brick and concrete, and the contractor claims that it was the company's bid on the latter that was accepted.

At the offices of the Queen City Brick Company there is no decline in business. "In fact, the outlook is good until January 1," said Manager Walrath, in an interview with THE CLAY-WORKER representative. "The year's building has been good," he continued, "and the outlook for Buffalo and its surrounding towns is excellent. The location of new industries during the past month will certainly increase our business, and Buffalo's facilities as a great natural industrial and distributing center cannot be surpassed."

A big brick contract has just been finished by the Queen City Brick Company for the new Simmonds Manufacturing Company at Lockport, N. Y., and the Niagara Cotton Batten Company.

John H. Black has just issued a book of greatest interest to builders and contractors who are using brick and terra cotta construction. This book contains a large number of designs and many pages of instructive information. A more extended notice will be given by THE CLAY-WORKER correspondent next month.

KNICKERBOCKER.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SEVENTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LIV

DECEMBER, 1910.

No. 6.

"For the world is full of roses,
And the roses full of dew,
And the dew is full of heavenly love
That drips for me and you."

—JAMES WHITCOMB RILEY.

CURRENT COMMENT.

This, our Christmas number, bears with it our earnest, heartfelt wish that every reader of THE CLAY-WORKER may have a Merry Christmas and a Happy New Year.

* * *

The building record for the year did fairly well, but the best news we get in the end-of-the-year season is the report that architects all over the country have plans in hand for quite a lot of building that is projected next year.

* * *

The Saturday Evening Post classifies the proposed revision of postal rates and the proposition to charge more for the advertising pages of magazines than the reading pages as discrimination against decency, and expresses the opinion that President Taft is too level-headed to make a recommendation of this kind.

* * *

The Governors held a gabfest in Louisville during the month, and it is said that the Governor of North Carolina and the Governor of South Carolina got together and agreed on a refutation of that old saying accredited to them. It naturally wouldn't apply in Louisville anyhow, because it need never be a long time between drinks in that city.

* * *

It is not really the bookkeeper's fault which way the annual balance goes, Mr. Brickmaker, but, just the same, the bookkeeper in the institution that shows up a good balance on the right side of the ledger will make his end-of-the-year report with more pleasure and receive his salary with more

pleasure on the part of the employer than the one who has to show a balance on the wrong side.

* * *

The postal savings bank may be a good thing and supply a handy strong box for the workman to put his savings in. Consequently, we don't begrudge it to them, but we are banking on there being more good to the world in general in a good clay bank.

We do hope that postal savings bank idea will help the postal department save money and not, like the rural free delivery system, wind up in costing so much extra that the Postmaster-General will have to shift the burden on the magazine publishers.

* * *

The example of the late David B. Hill illustrates the fact that a man can attain great prominence in the world of affairs without accumulating great wealth. Still, the average man would feel safer about his chances for prominence if he saw great wealth coming his way.

* * *

New Orleans and San Francisco are promising to get pretty warm in their fight for that Panama Exposition that it is supposed will be pulled off about the time the big ditch is opened. If they make a split of it and hold two expositions, the question is, how can a man go both ways at once?

* * *

Since the Postmaster-General has been entertaining some odd theories and notions, why not try this: Let ordinary letters go for 1 cent postage and make the public use two-cent stamps for sending picture postcards. There are some of the latter that people really ought to pay 5 cents for sending through the mails.

* * *

The letters L-O-U-I-S-V-I-L-L-E spell welcome in every known language. It is the city that greets you with a smile. It is neither South, nor North, nor East, nor West. It is just right, and it is the home of Mars' Henry Watterson. There are no "keys to the city." Its gates swing wide in welcome to every visitor, and the keeper of the gates, Mr. R. W. Brown, secretary of the Louisville Convention and Publicity League, is always on the job. However, he will be ably assisted February 6 to 11 by the entire local clayworking fraternity. Members of the N. B. M. A. should plan to come early and stay late convention week.

TWENTY-SEVEN YEARS OF SUCCESS.

With this issue THE CLAY-WORKER ends its twenty-seventh year. A brief period to look back upon, it seems, though it covers an average lifetime. We have endeavored to make each successive year's work better than the one previous. How well we have covered the field the past year is told graphically by the Annual Index in this number. The coming year promises well, and we will begin it auspiciously with an immense anniversary issue that alone will be worth the yearly subscription price. To our readers who have made it possible for us to accomplish so much in the past we are profoundly grateful, and will bend every energy to the fulfillment of an earnest wish that the new year may prove an unusually prosperous one. What we can do to that end will be done.

THE DAY OF RECKONING.

The end of the year brings with it a sort of annual day of reckoning for every industrial institution, and it is but natural that this season should be filled more with the thoughts of the great day of reckoning and summing up and seeing where we are at. Fortunately, too, the end of the year is preceded by a season calculated to put us in the right mood, for it is a season permeated with the spirit of peace and good will. Peace, good will and prosperity come mighty near encompassing in tabloid form a vast amount of doctrines of good and well wishes. Given good will and freedom from combativeness, and there is not much room for dissension and an-

tagonism, the things that make against progress and happiness. A season of good will and of giving is good for all of us, and though the sentiment has changed in form materially from the days of the early observance of the mid-winter festivities, it still carries with it an undercurrent of faith as well as a spirit of peace and good will. That is, faith that the future will provide and furnish us with even better and brighter things than the past. Let us get all we can from it, from this spirit of faith, peace and good will, and carry it with us through the day of reckoning at the end of the year and as far into the busy life of the new year as possible.

MAKE A RING AROUND LOUISVILLE.

If you have a wall map in your office or in your study at home, take the loudest pencil you have and put a ring around the city of Louisville on the map so that your attention may be attracted to it every time you glance up, because Louisville is to be the central point of interest to all the clayworkers and allied interests in February. It is there that the big annual meeting is to be held, the meeting at which all kinds of clayworkers and machinery and supply people are expected to be present; where there are wheels inside of wheels and the greatest time of the year generally for everybody interested either in clayworking or in furnishing machinery or supplies with which to do this work.

There will be a lot of interesting things to see in Louisville itself, and then there is a side trip scheduled to Mammoth Cave, one of the greatest sights of the world, to see which people come many thousand miles, and there will be something doing every minute from Monday, February 6, till the end of the week.

Louisville is located pretty near to the center of population in the United States. It is not too far north, nor too far south, and it should be all right in the way of location for a mid-winter meeting, besides being near the center of population and convenient to reach from all directions.

Just what the weather man may furnish for the week remains to be seen. Sometimes in mid-winter the weather is beautiful in Louisville and at other times wintry like, but whichever it is, there will be no trouble about securing comfort and finding plenty to see and do. So put a ring around Louisville and another around the dates on the calendar, and make your plans to be present and get your full share of the good things on tap convention week.

THE COST OF CARRIAGE.

The cost of carriage and handling, or the toll of trade, as it has been classed heretofore, is a matter that is in for more active attention right now than ever has been given this subject. It has been forced partly by the increasing cost of everything, the cost of raw material and of manufacture until high prices to the final consumer have proven burdensome in some cases, and so there has been a casting about for ways and means to reduce this.

At the manufacturing end it is realized that reduction is out of the question. Raw material costs more, help costs more, and machinery by the same process of raising comes higher. There is, of course, in the individual institution a chance now and then to economize by improving the system, but in the main the higher average of cost of raw material and manufacture remains, and to reduce prices for the consumers means to lessen the cost of handling or take something from the toll of trade.

In some lines of industry there is a tendency to take up what is termed the mail order plan, to go direct from manufacturer to consumer, and save what is termed dealer's profits, and also to eliminate the cost of handling an extra time. Recent newspaper reports tell of the biggest manufacturer of farm wagons in the country turning over to this plan the first

of the year, to marketing its product through the mail direct instead of handling it through jobbers and retail dealers.

No matter just what the success of this undertaking may prove, this and other examples go to show that attention is now concentrated on reducing the cost of handling. It doesn't matter either what the line of products, the limelight is being turned on the cost of handling and delivery from the manufacturer to the consumer. It applies in the brick business quite strongly, one of the big items in it being the freight rate to distant points. This, however, is not the only item by any means. Every time brick is taken up and handled, whether just a short distance, by hand, by wheelbarrow, or loaded into a wagon, it costs money, and anything that will point the way to lessening the cost without robbing the trade of any of its conveniences should be hailed with joy by the trade.

In some of the big institutions, where great quantities are handled, mechanical means can be adopted for reducing the burdensome work and lightening the cost a little, but there is still a great problem before the trade to figure out ways and means to reduce the cost of handling not only from the brick manufacturer to the local dealer, but from the brickyard to the building, and from the building lot upon the walls, where the brick are being used.

The hod carrier is an expensive adjunct to the brick-laying business. That a good hod carrier earns his money there is no question, and no fault to find with him for wanting good pay, for it is a back-breaking and nerve-racking work, but if it is practical to devise mechanical means to do this work and lighten the cost as well as the burden it should help out considerably. In the larger buildings recourse is now had to power elevators for carrying material from the ground floor up.

It seems like what we need is more of these and then another type less expensive that the average contractor can use on small buildings. Portable elevating machinery that can be made to do this burdensome work and lessen the cost of handling the material on the job. This is only one point; there are several points between the kiln and the wall where there is room to do some work in the way of solving problems that will reduce the cost of handling so as to leave a better chance for profit in the brick business and help to supply this best-of-all material so that it can be used in competition with everything else. Freight matters will always remain one of the important items, and it is hoped that now Congress has made an appropriation and started the work, there will be no let up until we have a system of inland waterways that will help out in freight matters, and then we hope some genius will solve the matter of loading brick into and unloading them from wagons so as to reduce both the cost of the work and the percentage of broken stock from dumping.

DEPRECIATION OF CLAYWORKING MACHINERY.

In taking the inventory at the end of the year is an excellent time to get something like positive knowledge on the relative amount of depreciation in clayworking machinery. It is well known that clayworking machinery wears out faster and depreciates more in the course of a year than machinery used in some other lines because of the service it is put to, and it is practically essential for the trade to establish some sort of a percentage basis of depreciation that can be relied upon as safe. In other lines of machinery there are various figures set as marking the average annual depreciation. Some claim that machinery does not depreciate any the first year, and after that it may depreciate anywhere between 3 and 10 per cent. Probably taking the country over the general average allowance or amount charged off for depreciation each year is nearer 10 per cent. than 3 or 5. The question for the clayworker is, will 10 per cent. be enough to charge off at the end of the year for clayworking machinery,

or should it be 15? The way to get positive information on this is by checking back over the records from year to year to get at the life of the machines and to get a figuring basis that will enable one to charge off what might be termed a safe per cent, for depreciation at the end of the year. Also, when you charge this off set it up as a reserve fund with which to buy more machinery. It will make it easier both for you and the machinery man.

Written for THE CLAY-WORKER.
THE CHRISTMAS TREE.

Steeped in the dye-vats of the earth,
A tiny seedling lay;
Slept as it grew unconsciously,
All in its tree-life way.
Burst thro' the vaulted vats, at last,
Into the world of air—
Came like the little human child,
Into the Everywhere.
Grew in its new-found liberty.
Joyous and glad and free,
Filled, like the child, with buoyant life—
Breath of eternity.
Then did the Mother Earth take care—
Tended her treeling child
Just as the human mother fed,
Sheltered, and loved, and smiled.
Glistened the glossy emerald leaves,
Bathed in the same gold sun
Where, thro' the long, sweet summer days,
Frolicked a little one.
Vain Mother Earth then decked her child,
Beaded with berries red;
Then was a pretty crimson cap
Placed on the wee child's head.
Snow came down, and its ermine folds
Covered the little tree;
"See," cried the child in his white fur coat,
"Doesn't it look like me?"
Christmas came, and the holly tree
Stood in a fairy place;
All was dazzling, new and strange—
All but the baby's face.
Gorgeous in tinsel ornaments,
Brave with its gifts so gay,
Proudly the little tree gave up
Its liberty that day.
Proud was the Mother Earth, and glad,
All in her mother-way—
Round her beautiful holly child
Centered the Christmas day.
Proud was the human mother, too;
Filled was her heart with joy—
Wasn't the whole of Christmas made
Just for her little boy?
Fitting service of child and tree—
Children of common clay,
Made to serve, in their own best way,
The Maker of Christmas Day.
—MARGARET ANDREWS OLDHAM.

COLONEL KENTUCKY.

With world-famed hospitality, he asked the N. B. M. A.
To visit his historic home, upon the southward way—
Where always grows the bluest grass, the rye most succulent,
And steeds most worthy of their names, in blood and fire blent.
Where manners are brocaded, and where chivalry's a-bloom—
That sentiment may ever flower in safe and happy room;
Where Nature spread her splendors, and the good God built a dome
To glorify and hover o'er each "old Kentucky home."
That proud "Gate to the Southland"—he'll fling it open, wide,
And bid us "make ourselves at home" as long as we abide,
And give us largess of his best with rare colonial grace,
Befitting such a gallant son of such a valiant race.
We thank Colonel Kentucky, and we'll take him at his word.
And come, for well we know the best of him we haven't heard.
As clayworkers, we're judges of fine earths, and so we say:
We think that he is made of just the finest kind of clay.
—N. B. M. A.

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“GETTING THE MOST FOR A DOLLAR”

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy
Engineering Company.

[See page 700.]

FOR SALE, WANTED, ETC.

WANTED

Position by an experienced man as manager or superintendent of a plant manufacturing paving or building brick or drain tile. References if desired.

Address BOX 12 L. S.,
12 1 d Care Clay-Worker.

FOR SALE—For \$10,000, complete brick plant, consisting of No. 2 Giant machine, Frost pan, Success cut-off, 125 h. p. Corliss engine, two boilers. Eagle repress, Reid's elevating car system and 220,000 capacity dry shed. Brick office boarding house, 140-foot well, finest steam pump, abundance of shale. Complete; perfect running condition. Large Oklahoma town; three railroads; close to big markets. A snap, as present value is \$25,000. Address

BOX 11, J. D.,
11 1 2p Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
pages 687-689.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTH-WEST.



THE BUILDING season is ending with a rather tame finish, as compared with the way that it went for the first half of the season, but with a generally satisfactory season in the main. Brick manufacturers have been able to make a fair season out of it, although some received a severe setback in the opening of the spring work by reason of belated frosts catching a number of yards with green brick and ruining them. But during the active portion of the building season there has been a good demand. In the early part of the summer there was a pronounced shortage, caused by the late period of starting the yards. Some very good prices prevailed at that time, and fair prices have ruled through all the season. The amount of brick on hand at this time to be carried over for winter and spring trade is larger than a year ago somewhat, though not very much larger, and the present indication is that the winter demand, at least, will be smaller. There is less present new work in sight than has been the case in the fall. This may be remedied after the New Year, especially if things develop. However, a good many look to see a quiet season during the winter and early spring, for the general commercial conditions call for a period of easing up, and building trades will naturally get their share of the process. This is no reason why prices should suffer, for the values asked for brick have been on a moderate margin in view of the higher costs of fuel, labor and all that affects the production.

The towns of Spooner and Baudette, Minn., on the Rainy river, in northern Minnesota, and bordering on Canada, are rebuilding after total destruction by forest fires. Fire limits are to be established for the central districts after the present temporary structures have been endured long enough to permit the construction of permanent buildings, and the rebuilt towns will be far better than the old ones.

Minneapolis interests have formed the North American Brick, Tile and Pottery Company and are establishing a town site at Walsh, in northern Minnesota, near Tower. Machinery for a clay plant is under consideration.

The Northern Brick and Supply Company, of St. Paul, has recently been incorporated.

The building permits for the Twin Cities will make a most creditable showing for the year of 1910, considering the back-set which has followed the short crop, resulting in a decided lessening in building for the past few months. Minneapolis permits for eleven months show a nice gain over the same months of 1909, being slightly in excess of \$13,000,000 for the present year, an increase of some \$700,000 over the same period of the year before. St. Paul is somewhat behind the totals for a year ago, having several very heavy totals in the comparative months of a year ago to go against. But aside from last year this present year will eclipse all other years. Residence construction has been very heavy in St. Paul during the present year.

There has been quite a little talk of forming some kind of public display room for showing different grades of brick available, the intention being to have it so that intending builders could inspect it and consider it for use in their projected structures.

There has been a great deal of discussion in these cities over the abolition of the smoke nuisance. This is a matter in which brick manufacturers are more interested than they perhaps appreciate. When the smoke nuisance is allowed to continue unabated it means that the buildings of the city promptly take on a dingy color. With the white enameled face brick it calls for a cleansing of the entire exterior to make it appear presentable, and possible builders who see the dis-

colored work will be inclined toward other materials. Pressed brick is also rendered far less inviting in appearance, because there is less attempt made at keeping it wholly clean.

The State Drainage Commission of Minnesota is urging for a much larger appropriation with which to carry on its work of straightening water courses, draining wet lands and generally improving low-lying lands. This will call for a greater use of tile for draining private lands adjacent thereto, and tile manufacturers will profit thereby. There is room for considerable education as to the proper use of tile for drainage in many parts of the State, and also as to the comparative merits of clay and cement tile for drainage. But the business is developing in a way that is surprising, and the activities of the drainage commission will tend to encourage it still further.

Harold Johnson, of the brick and fireproof tile concern, Johnson, Jackson & Corning Company, Minneapolis, is one of the nominees for first vice-president of the Minneapolis Builders' Exchange. The election occurs early in January.

The College of Engineering of the University of Minnesota is about to erect two new buildings, one experimental building and a main building. Each will have an exterior of pressed brick with cut stone trimmings. The appropriation for the two buildings is \$250,000. Bids have been taken for the work, the Libby & Nelson Company being the low bidder on both structures, but the bids were somewhat in excess of the appropriation, and no award has been made.

Long, Lamoreaux & Long, architects, Minneapolis, recently prepared plans for a garage to be erected at Eau Claire, Wis., for the Tanbig Auto Company. It will be of pressed brick and cut stone construction, 66x125 feet. Cost, \$15,000.

The W. J. Hoy Construction Company, of St. Paul, has been awarded the general contract for the erection of the new central exchange building in St. Paul for the Northwestern Telephone Exchange Company at \$10,000, not including the structural steel, which amounted to \$29,000 more.

Quick action was represented in the decision to erect a new building at 310 to 314 Nicollet avenue, Minneapolis, which was the scene of a fire recently, which damaged the upper floor of the old two-story building. The owners took hasty consultation and decided immediately to tear out the old building, instead of repairing it and replacing it with a four-story building with brick walls. The foundations will be put in to sustain ten stories. Long, Lamoreaux & Long are the architects, and M. Schumacher has the general contract for the building. Cost, \$30,000.

Tentative plans have been drawn by the Great Northern and the Burlington railway interests for freight houses to be erected in Minneapolis, each to be 45x1,050 feet in size, brick construction and fireproof. Work may be started next season on these buildings, although this is uncertain.

The Phi Gamma Delta fraternity of the State University, in Minneapolis, has had plans prepared by C. B. Strauss, architect, of Minneapolis, for a brick fraternity house. It will be of colonial brick, three stories and basement, 49x49 feet in size. Cost, about \$25,000.

The Haglin-Stahr Company received the general contract for the erection of the Dr. Abbott's Surgical Hospital, at Eighteenth street and First avenue, South, in Minneapolis. Cost, \$60,000.

James F. Denson, architect, St. Paul, has prepared plans for the erection of a modern wholesale dry goods warehouse for the firm of Finch, Van Slyck & McConville, of St. Paul, at the corner of Fifth and Wacouta streets. The building will be nine stories, brick and terra cotta exterior walls, 245x190 feet in size. Cost, complete, \$600,000. Work is started for the excavations.

The Minneapolis Brick and Tile Company is making some repairs to its plant, located at 4728 North Lyndale avenue, following the fire which occurred a few weeks ago. There will be a tile roof, repairs to the kilns and other changes.

T. WIN.



BUILT RIGHT
RUN RIGHT

The Biggest Plum
in the XMAS Pie

The Greatest number of plums are found in the Christmas Pudding of the successful Clayworker. We can help you "grow the plums" right in your own "plant" by installing the proper machinery which will insure you increased output at less operating expense and less cost of upkeep. This is a triple saving which makes for success. Correspondence solicited.

The American Clay Machinery Co., Bucyrus, Ohio

Be sure and mention THE CLAY-WORKER in answering ads.



No. 599 Six-Mold Press

This press is built in such a substantial manner that it will stand many years of hard service, at the same time turning out an excellent product. It is the result of a long period of practical experience in designing and operating machines of this type. It is constructed on the simplest possible lines, and all its parts are readily accessible and easily kept in repair.

The mechanical movements of the press are such that the full pressure is maintained upon the brick for a maximum interval. This result is accomplished, however, without loss of time or diminution of capacity. Thus brick are produced that are perfect in form, of uniform consistency, and without a flaw, seam or granulation in any part.

The machine is supplied with an American friction clutch pulley, with clutch brake mounted on the same shaft, being actuated by a single lever conveniently located at the right of the mold table.

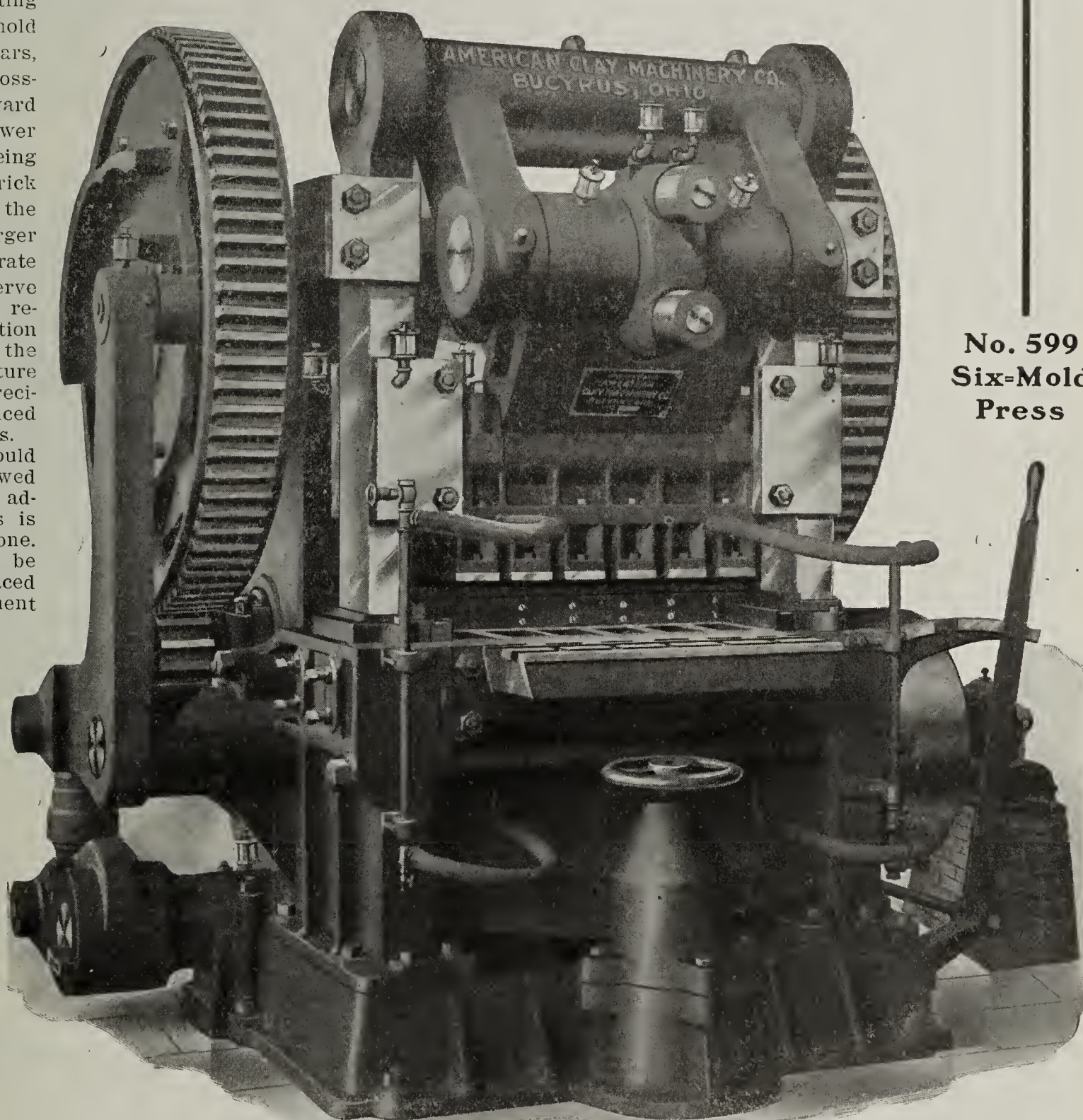
The stresses incident to the pressing of the brick are borne by two massive steel forged tension bars. In this machine the pressure is applied by means of powerful toggles, accurately finished and of abundant strength. The mechanism is so arranged that the wear comes on the bottom of the three toggle shafts, thus making a perfect lubrication possible.

The method of ejecting the brick from the mold is such that the side bars, toggles and upper cross-head do not move upward with the brick, the lower cross-head only being lifted to bring the brick flush with the top of the mold. The mold charger is arranged with separate side guides which serve the double purpose of relieving the wearing action of the charger on the mold table. This feature will be greatly appreciated by all experienced users of vertical presses.

The mold liners could be removed and renewed in short time. The adjustment of the liners is easily and quickly done. The mold liners may be reground and replaced without any enlargement of the mold cavities.

The thickness of the brick can be changed in a few moments' time. The lower die plates can be made flush with the mold table. The bearings are long, of large diameter, and are arranged so that the wear can be taken up in a most effective manner. The main gearing is massive.

The press is self-contained, and provided with a heavy and substantial main bed plate, on which the side frames are mounted and securely bolted.



**No. 599
Six-Mold
Press**

The American Clay Machinery Co., Bucyrus, Ohio

Be sure and mention THE CLAY-WORKER in answering ads.

American Steam Pipe Rack Dryer

(Patented)

Too much care can not be taken in laying out and constructing your Dryer. That is why we maintain an engineering department competent to successfully carry out this work. It is no more expensive to be right, in fact it eliminates a great deal

of operation trouble and expense. Our engineering department will look over your plant and give you the proper layout. Our factory will deliver you an equipment for the dryer which is faultless in material and manufacturing. With these attributes of success your dryer trouble will be eliminated.

The American Patented Steam Pipe Rack Dryer is designed by specialists in this class of dryers. It is constructed of the very best material in a thoroughly workmanlike manner, under the direct supervision of the best Engineering and Manufacturing Departments in the clayworking field.

It is the **ideal dryer** with **no cost of maintenance** and the **lowest possible cost of operation**.

The Alsip Patented Cable Delivery System, which is owned and controlled by us **Saves Labor, Protects the Product and Economizes Space**.

We own and control the vital patents which make the Steam Pipe Rack Dryer a success and will protect with a surety bond any user of the American Steam Pipe Rack Dryer who has fears of interference.

We have just received a number of additional patents on this dryer which place it still farther in advance of others. We will be glad to correspond with you relative to this or any other Dryer. We build every type of dryer and are prejudiced in favor of none. Your clay and its drying properties govern us in recommending a dryer.

We build every machine and appliance needed for the production of every class of Clay Products by any process.

**The American Clay
Machinery Co.**
**Bucyrus,
Ohio, U. S. A.**



Be sure and mention THE CLAY-WORKER in answering ads.



Built Right
Run Right

The Rotary Motion of this Screen Insures Its Long Life and Thoroughness.

It isn't because it is our screen, but because it is THE screen. When a screen makes good it is pretty safe to say that it IS GOOD.



When others have found that the Centrifugal screen does better work at less cost and with less trouble, it is a good indication that the screen is "Built Right and Runs Right." Many users are praising it and recommend it. We will be glad to refer you to users of this screen direct, so you may ask them regarding its operation. The principle of the centrifugal screen is a departure from the vibratory movement. It saves destructive jar and increases the capacity. If you have used other screens with indifferent success, the installation of the Centrifugal Screen will convince you of its superior-

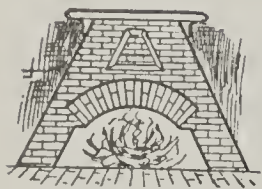
ity. We have other screens if you prefer them, as we build every class of Clayworking Machinery for making clay products by all processes.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



AFTER HOLDING OFF for a long time, the rainy season has commenced in California, and the next few months will doubtless be very quiet in the building line, though quite a number of large contracts on public buildings and other important structures are due to be let between now and the end of January. Things have been extremely quiet for the last month in San Francisco, the total amount of contracts let amounting to only \$805,938, of which \$383,442 was for new brick work. The dullness here is attributed to the over-building of the last few years, and it may be some time before any material improvement takes place. The brick men believe, however, that if the Panama-Pacific Exposition is held here in 1915 business in the meantime will be fairly active. The other coast cities are going right ahead, the city of Portland, Ore., for example, showing a record of building permits of \$1,100,000, an increase of 19 per cent. over November, 1909.

The nearby city of Oakland is attracting considerable attention in the matter of building, having grown rapidly since the San Francisco earthquake, and a number of large jobs there are being taken by San Francisco firms. That city's building record last month amounted to \$351,557, and has been much larger at times during the year. That city expects an enormous growth in the next few years, as a large suburban territory has been annexed, and the Southern Pacific railroad is building a network of rapid-transit electric lines throughout the city, which will open up all the new land for high-class residence purposes. Most of these lines will be in operation within the next six months, and preparations are being made for a large number of buildings to be occupied when the improvements are completed. A similar development is going on in Los Angeles, where the Southern Pacific now controls the electric railroads, and is rapidly developing the suburban districts.

It looks as if a further curtailment of operations would be necessary in the common brick business. Many of the smaller plants around the bay have been closed this year, but several of the larger manufacturers who have been operating are approaching the year with large stocks unsold. While as far as can be learned none of them have closed down, it is not unlikely that some of them will do so during the winter, and unless there is a better tone to the market next spring, the plants may remain idle for some time. Prices, which have for several months been hovering around \$6.50 per thousand, are again being cut, and a good many are said to have been sold at \$6.00 or lower.

Notwithstanding the arrival of the rainy season, the manufacture of sewer pipe continues to occupy a leading position. Of course little installation can be done during the winter, but a number of large contracts have been placed by outside towns in anticipation of work to be carried out in the spring, and most manufacturers have work in hand to take up their full capacity. Those who have not are making up considerable stock, expecting to find a ready market for it. Contractors are still working on many of the local sewers, but the funds available are becoming exhausted and the San Francisco authorities have not let any new contracts for some time. There is a great deal of work to be done, however, and it is believed that more money will be set aside for this purpose as soon as possible.

Owing to the delay in San Francisco sewer work the Vallejo Brick and Tile Company, Consolidated, which has sold most of its paving brick output in the last year for sewer purposes, finds business a little quiet, though it still furnishes most of the sewer brick. The company is accordingly turning its attention again to brick for strictly paving purposes, and is making some very fine stock. So far there is not much market for them, but it is believed that San Francisco and some of the suburban towns can be induced to give them a trial before long. This company is anxiously awaiting the results

of the brick pavement recently laid as an experiment in Oakland, which is considered as the first step toward extensive developments along this line.

M. Clark & Sons report continued activity in the sewer-pipe department, but report a quiet season in the terra cotta line, though they are working on several large contracts. They are furnishing the material for the Eagles Hall in this city, and recently secured the contract for the ten-story Realty Syndicate building in Oakland, calling for matt-glazed enamel terra cotta, with a lot of intricate polychrome work. They have also taken a \$5,200 contract for matt-glazed and polychrome work on the six-story Rivers Bros.' building in this city.

The Carnegie Brick and Pottery Company has adopted a radical change of policy. This company has for several years conducted its own sales department under the management of M. A. Murphy, but about a month ago Mr. Murphy left and was succeeded as manager by J. F. Roberts. Since then the company has turned over the selling to the Western Building Material Company, with offices at 430 California street. This concern has in the last few years built up a large business in brick, cement, lime, etc., and it is expected that its well-organized sales force will be able to handle the Carnegie products to the best advantage.

Robert W. Spence, one of the best known brick men in the vicinity of San Francisco, died suddenly at his home in Berkeley on November 22, his death being caused by hemorrhage of the brain. Mr. Spence was only forty-two years of age, and his death was a great shock to his many friends in the trade. He came to California from Canada a number of years ago and founded the Port Costa Brick Works, of which he was secretary and manager. He had won a high reputation among the building material men for square dealing, and his death is universally regretted. He was prominent in Masonic circles, and the funeral was held under the auspices of that order.

James H. McMullen, one of the proprietors of the Pomona Brick Company, of Pomona, Cal., died suddenly at that place November 27. He was a native of Canada, fifty-four years of age.

The San Francisco Builders' Exchange held its twentieth annual banquet at the Palace Hotel, November 19, all the local brick firms being well represented.

W. W. Dennis, formerly with the Holmes Lime Company, and now sales manager for the McNear Brick Company, returned a couple of weeks ago from a trip through the North.

A rumor is being circulated that a large brick plant, backed by Los Angeles parties, is soon to be started at Riverside, Cal.

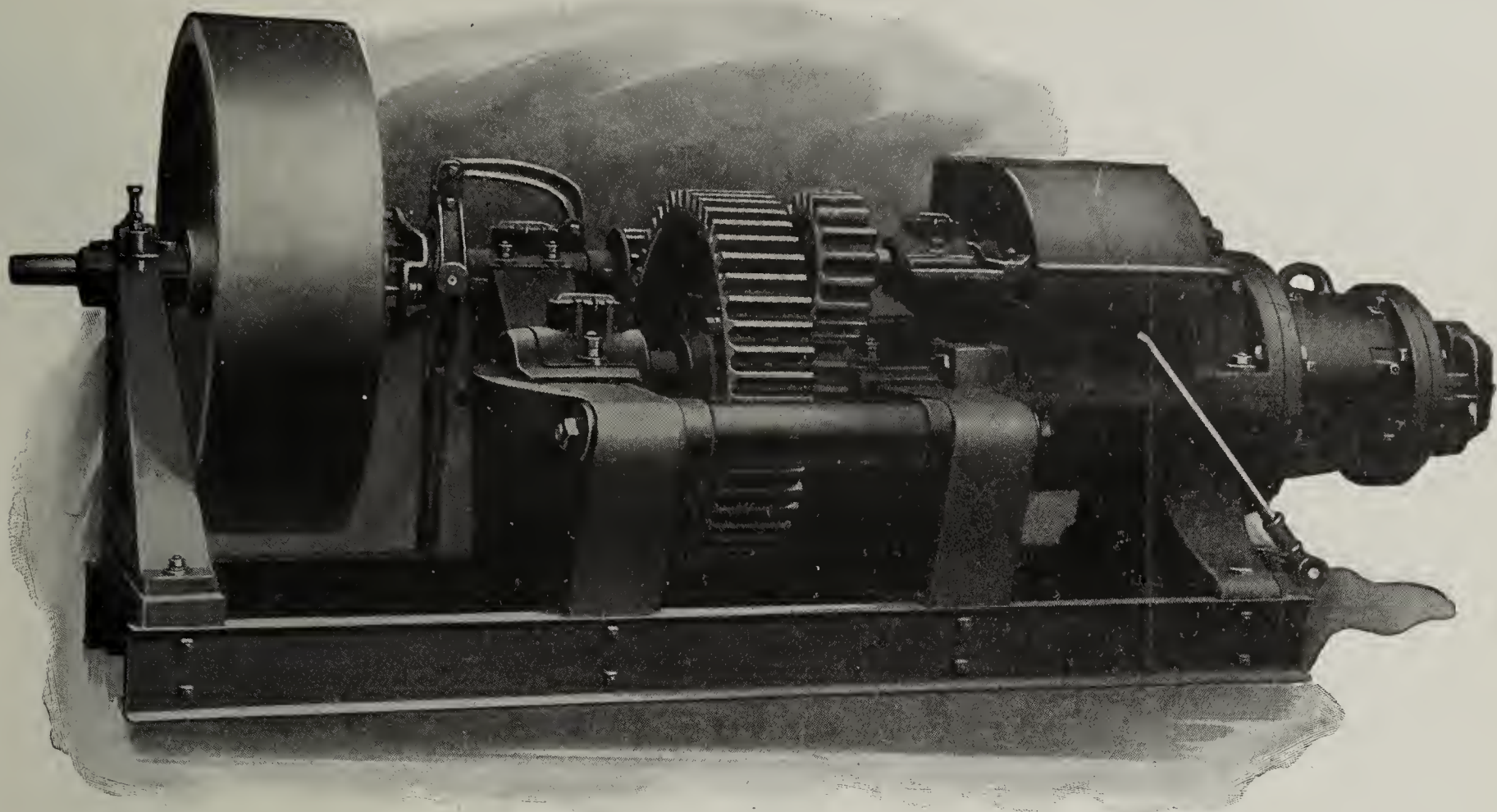
The Long Beach Brick Company resumed work at its kilns at Long Beach, Cal., late last month, having taken a contract for a large school building.

The plant of the Los Angeles Pressed Brick Company at Richmond, Cal., will supply the brick for the new Standard Oil Company stills at that place, 1,000,000 brick being required. It is stated that the Standard Oil Company will spend \$3,000,000 in the next few years in improving its Richmond plant, owing to the immense production of its wells in the San Joaquin valley. Mr. Larson, superintendent of the Los Angeles Pressed Brick Company's plants, was in Richmond recently on his regular tour of inspection, and made final arrangements for the extensive additions to be made to the plant during the winter.

The Paine Tile Works at Huntington Beach, Cal., has ordered machinery which will add over 30 per cent. to its brick capacity and double its tile capacity.

The first large lot of fire brick was shipped from the new plant of the Livermore Fire Brick Company at Livermore, Cal., on November 25, being sold to the owners of the new brick works being erected at Sacramento. The company is finding a ready market for its output of fire brick, and will be shipping on a large scale within the next few weeks.

The plant of the Houze Brick and Cement Company, successors to the Hyfire Brick Company at Vallejo, Cal., will soon be closed for the winter. It is reported that a paving brick plant will be installed there next spring. SUNSET.

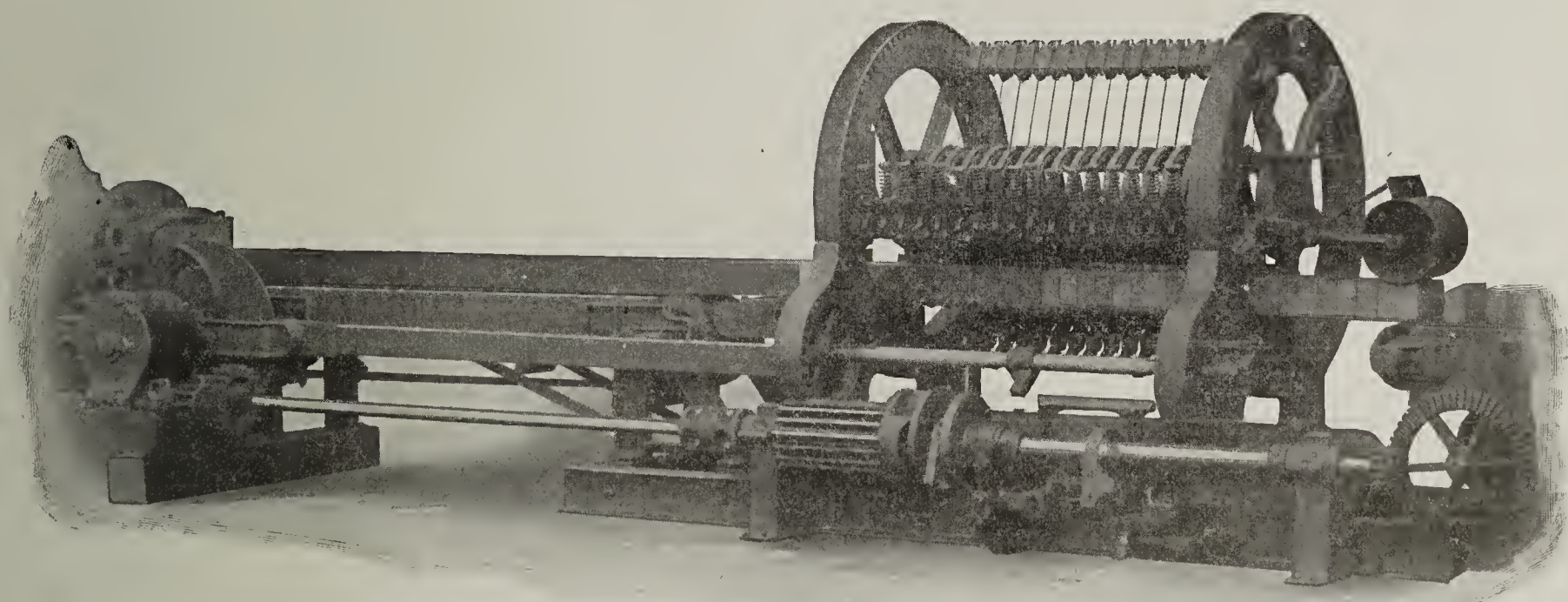


MODEL "G A" AUGER BRICK MACHINE

This is similar in general design to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and reducing the gear speed very materially. The result is less wear and tear on gearing and less expense for maintenance, and owing to the slow speed, the operation is very smooth and quiet.

The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled to receive the foundation bolts, thus providing a very rigid construction. Further particulars on request.



AUTOMATIC CUTTERS

We build these Cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for Roman and Norman brick, hollow brick, fire proofing, radial chimney blocks, etc.

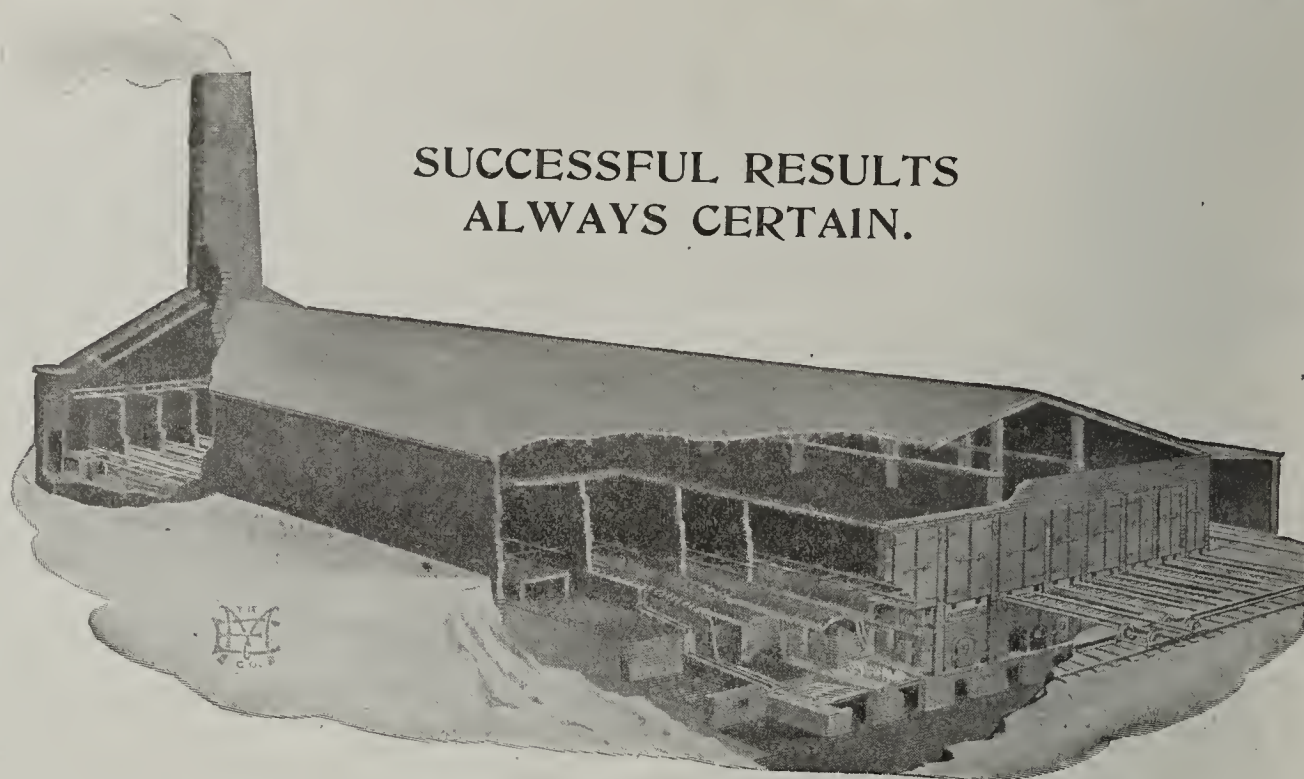
They do not require skilled attention. They do first-class work.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 720-723.

THE JUSTICE RADIATED HEAT DRYER

(Patented.)



SUCCESSFUL RESULTS
ALWAYS CERTAIN.

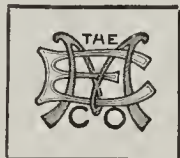
Dries a larger variety of clays and a greater number of clay products, and produces a much larger percentage of uniformly dried ware than any other type of progressive dryer. It is the most economical dryer to install, because—

There is no expense for its up-keep.

The fuel consumption is less per ton of dried ware than in any other.

Only the minimum amount of labor is required to operate it.

Conditions always under full control of the operator.



The above points of merit should commend this dryer to the consideration of prospective users as well as of those who now use other types of dryers, and who will be studying their best interests by changing to the

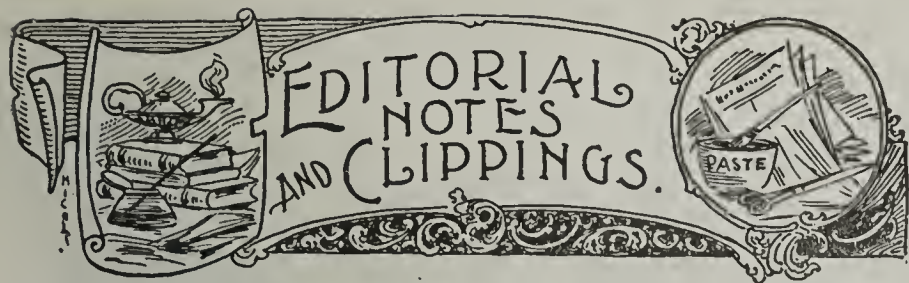
JUSTICE RADIATED HEAT DRYER.

A full description of this dryer is given in our Bulletin, which we will take pleasure in sending upon request.

The above is one of the many good things that we have to offer to the clay-workers. We are prepared to equip clay plants complete, and solicit your inquiries for

**Stiff Plastic and Dry Press Brick Machinery,
Periodic and Continuous Kilns, Supplies, Etc.**

**The Manufacturers Equipment Company,
Dayton, Ohio, U. S. A.**



W. Randolph and F. Smith are at the head of a company that is erecting a large brick plant at Huntsville, Texas.

Theabold Brothers have erected a new plant at Beaver, Ohio, for the manufacture of drain tile.

T. M. Hart writes that he is trying to interest parties in a movement to erect a brick plant at Pecos, Texas.

The Angola Brick and Tile Co., of Angola, Ind., has filed notice of an increase of capital stock from \$10,000 to \$20,000.

A \$300 fire was caused by the burning of the kiln sheds at the Yankee Hill Brick Company's plant at Burnham, Neb.

The Muskogee Dry Press Brick Co. has been incorporated at Muskogee, Okla., with \$30,000. S. J. Allen, D. Rodgers and others are interested.

Thomas Fatland, engineer for the Farmers Brick & Tile Company at Austin, Minn., fell from the top of the boiler at the plant and fractured three ribs.

The Sioux City Brick Company, of Sioux City, Iowa, has filed articles of incorporation. The incorporators are C. F. Green, Tom Green and Russell A. Marks.

Willard H. McBride, superintendent of the Robinson Clay Products Company's plant at Canal Dover, Ohio, died recently from injuries resulting from a fall from a 12-foot trestle.

J. H. Corbett, of Mahoning, Pa., bought a 5-foot pan of Stevenson's make a couple of years ago and recently placed a rush order for another, which was on the ground within a week.

A company has been formed at Salmon City, Idaho, known as the Lemhi Brick & Lime Co. The officers are J. G. Wicklund, president; F. M. Pollard, vice-president, and W. H. Shoup, secretary.

Dr. George I. Keener is rebuilding his brick plant at Weston, W. Va., which was destroyed by fire several weeks ago. Modern machinery is being installed and the capacity of the plant will be considerably increased.

Claiming that sparks from an engine owned by the defendant caused the destruction of their plant at Wilkesbarre, Pa., the Wilkesbarre Brick Company has filed suit for \$12,000 damages against the Lehigh Valley Railroad Co.

The Granite Brick Co., of Columbia, S. C., has placed an order for one of Stevenson Co.'s heavy duty dry pans, and a quantity of the excellent machinery built by E. M. Freese & Co., of Galion, Ohio, which is to be installed at once.

John W. Beckett, a well-known brick manufacturer of Pittsburg, Pa., died at his home in that city recently, after a short illness. He was seventy years old and leaves two sons both of whom were associated with the father in the brick business.

As a result of a fall from a ladder in a kiln at plant No. 2 of the Standard Pottery company, East Liverpool, Ohio, James Brock, aged 63, considered about the oldest potter in the city, sustained a fractured and dislocated right shoulder and minor bruises.

This last month Stevenson Co., Wellsville, Ohio, displaced with their heavy duty pan a rival make of pan in the New York and New Jersey Brick Co.'s plant at Kingsland, N. J., where that veteran brick-maker and keen judge of machinery, A. F. Blatchford, presides, and another in the Lisbon Cement Co.'s plant at Lisbon, Ohio.

R. L. Mernagh has sold his stock in the Mt. Vernon Press Brick Co., of Mt. Vernon, Ill., to G. T. Ham and A. V. Smith. After being in the brick business in St. Louis for a number of years, he organized the Mt. Vernon company in 1903 and has since been its president and manager. He has not yet decided what line of business he will take up.

The Lehigh Sewer Pipe and Tile Company, of Lehigh, Iowa, has just drawn its first kiln of sewer pipe which was burned with crude oil. The ware proves to be better than that burned by the old method, with coal. The company recently equipped one kiln with what is known as the Shurs

crude oil burner, and if the crude oil will burn their ware successfully, they will equip their entire plant with these burners.

The North Penn Silica Rock Co. has installed one of the Stevenson's 5-foot pans at their Glenside, Pa., works within the past month.

The Harrisburg (Pa.) Clay and Brick Company's plant located near Mt. Holly, Pa., was burned to the ground December 7. The origin of the fire is unknown.

Robert P. Yancey died suddenly November 26 at Leesburg, Fla., where he was operating a brick plant owned by his father, Hamilton Yancey, of Rome, Ga. He leaves a wife and one child.

The North Brick Supply Co., of St. Paul, Minn., has filed articles of incorporation with the secretary of state; capital, \$25,000. The incorporators are John H. Donohue, Jr., Martin T. Roche and John T. Harrington, St. Paul.

A. S. Reid & Company, dealers in high grade building brick at Newark, N. J., recently moved their offices to 1501 and 1502 Fireman's Insurance Building, Newark, N. J., where they have a fine display of front, enameled and paving brick.

The Ontario Sewer Pipe Co., of Mimico, Ont., is wide awake to improvements in clay machinery and steps in line with its neighbor, the Dominion Sewer Pipe Co., by installing one of Stevenson Co.'s latest improved heavy duty pans, a 40-foot elevator and a piano wire screen.

The Don Valley Brick Works, Toronto, Canada, is in the market for a pyrometer. Wm. Burgess, the superintendent of the plant, writes that business has been good with them, 30,000,000 brick having been turned out this season, with plenty of good orders on their books. They expect to run the plant all winter.

It is intended by the management of the West Virginia Clay Products company to have a plant within a short time in which will be manufactured at least 75,000 high class brick each day, as well as other clay products. A big force of men is now at work getting the plant in readiness for operation. It is located about two miles above Charleston, W. Va.

The Capital Brick Company, of Alexandria, Va., has been granted a charter. The officers and incorporators are Daniel Foley, president; Roland W. Bissell, vice-president, and Harry T. Darr, secretary and treasurer, all of Washington, D. C. The capital stock must be not less than \$1,000 or more than \$250,000. The object of the concern is the manufacture and sale of bricks.

The main office of the Marion Brick Works has been moved from Castle Hall Building, Indianapolis, Ind., to Montezuma, Ind., where the main plant of the company is located. They will continue to manufacture their cherry red sand mold brick at the Marion, Ind., plant, and at the Montezuma plant they will continue to turn out the Marion paver as well as their wire cut building brick.

Without allowing the case of J. A. Phillips, a former employe of the Western Terre Cotta Company, who had lost his right foot and lower leg while at work at the company's plant in Kansas City, Kas., to go to a jury, the insurance company which stood liable for the accidents at the plant, settled for \$3,800. Phillips is 44 years old. His clothing became entangled in some of the machinery and he was held on a revolving shaft until his foot and leg were so badly crushed that amputation was necessary.

A disastrous fire occurred at the Marion brick plant, Montezuma, Ind., November 19, when all the kiln sheds were burned. The loss is estimated at \$7,000 outside of the damage done to the brick which were in the kilns. The origin of the fire is not definitely known, as the blaze was under good headway when discovered. It is thought that it might be due to a live wire. Most of the men employed by the company have their homes at the plant and but for the timely

(Continued on page 681.)



All persons are warned against INFRINGEMENT.

FISKE & COMPANY, Inc.

BOSTON.

NEW YORK.



Barrett's PAVING PITCH



120th Street, Looking West from Parnell, Chicago. Brick Pavement Filled With Barrett's Paving Pitch.

ELASTIC AND INDESTRUCTIBLE

Barrett's Paving Pitch is elastic and pliable and readily conforms to the changes of surface caused by settling in the foundation or sand cushion. It adheres closely to the paving block, forming a perfect binder, yet its elasticity prevents any breakage of bond at the joints by passage of heavy trucks and wagons.

Barrett's Paving Pitch is practically indestructible. It is a long-lived filler that makes a well-preserved and lasting pavement. Contrast with this a rigid cement which allows for no settling and soon breaks up under ordinary traffic, or a sand filler which does not bind at all, but leaves each paving block independent of the others and unsupported.

Many asphalt fillers also lack in binding qualities and tensile strength; they seem "dead" and tend to disintegrate shortly after application. An asphalt filler is also most difficult of application, especially in brick pavements in which the interstices are very small. It chills quickly and will not pass down readily to the base of the blocks.

Barrett's Paving Pitch by its elasticity allows for expansion and contraction of the blocks without the necessity of special expansion joints.

With paving pitch "every joint is an expansion joint."

The price of Barrett's Paving Pitch is low. It requires no special skill for application.

Booklet giving further information on request.

BARRETT MANUFACTURING COMPANY

New York
Cleveland

Chicago
Pittsburg

Philadelphia
Cincinnati

Boston
Kansas City

Minneapolis
New Orleans

St. Louis
Seattle

London,
England

EDITORIAL NOTES AND CLIPPINGS—Continued.

aid rendered the loss might have been greater. The damage was covered by insurance.

Improvements to the extent of \$25,000 will be made at the Stipes brick yard at Urbana, Ill., while the plant is shut down for the winter season.

The Lock Four Brick Company is the name of a new concern recently organized at Charleroi, Pa., by Charles Potter, Samuel H. Pyle and Frank Bly.

The Hazelhurst Brick & Manufacturing Company has been organized at Hazelhurst, S. C., with \$10,000 capital stock. J. T. Coney, G. W. Covington and B. F. Johnson are interested.

The plant of the Star Building Brick Company at Moberly, Mo., was burned to the ground recently. The company has decided not to rebuild on the present site which will be sold to the city.

Walker & Frank, manufacturers of brick, Detroit, Mich., have merged their business into a stock company under the style of the Walker & Frank Brick Co., with an authorized capital stock of \$50,000.

The Savannah Brick Works, of Savannah, Ga., has been granted a charter, and will commence operations with a capital stock of \$50,000. The incorporators are H. B. Skeele, C. H. Konemann, J. F. Heitman and Cary Mendal.

Charging that the Federal Fire Clay Company extended its adjacent mines under his land and took 15,111 tons of fire clay, William A. Gordon, of Montreal City, Ohio, has brought suit against the company for \$860.44. He has been granted a temporary injunction restraining the company from taking clay from under his land.

The Robinson Clay Product Co., of Akron, Ohio, have lost one of their most capable and valued men in the death of W. N. McBride, of Canal Dover who was fatally injured in a fall of fifty feet from a clay tippie and never regained consciousness. Mr. McBride was superintendent of the works at Midvale, Malvern and Canal Dover.

The Gulf Coast Brick & Tile Company, which was recently incorporated at Brownsville, Texas, has its plant about completed and ready for operation. The plant is equipped with presses furnished by the Illinois Supply & Construction Co. C. W. Winstedt is president; S. L. Worman, vice-president; E. F. Johnson, treasurer; A. A. Browne, secretary, and C. C. Frampton, superintendent.

The firm of Raymond Brothers, of South Norwalk, Conn., who deal extensively in brick, have taken over a large brick manufacturing establishment in New Britain, where they will manufacture most of their own brick hereafter. The plant is thoroughly up-to-date in every particular, complete in all its appurtenances and having a capacity of 10,000,000 brick a year. The establishment is now in full operation and will be kept so throughout the year under the efficient management of the new owners.

McLain Fire Brick Co., of Pittsburg, Pa., operating a chain of four brick plants along the Ohio river, has discovered that the vein of clay mined at the Ironton plant is a very superior article, producing brick for which there is a rapidly increasing demand, necessitating constant increase of capacity. Only a year ago they put in one of the Good Roads Machine Co.'s largest rock breakers to facilitate work, and now are under the necessity of installing another of Stevenson's 8-foot wet pans, for which order is already placed.

Thomas H. Gesner, who has conducted the Gesner Brick Yard at Darby, Pa., for several years, has retired from business and will demolish all the buildings on the property. The ground will be sold and will no doubt be improved in a short time. The Gesner brick yards have been in existence for more than fifty years, and were started by William Gesner, and have been continuously managed by members of the Gesner family. The present proprietor succeeded his father in 1893.

Adolph Meyershoff, foreman of the St. Louis Vitriified Press Brick Company, at Mokeville, St. Louis county, Mo., was killed by a Creve Coeur car while crossing the tracks at Overland Park. The body was thrown fifty feet into a ditch. The car was west bound, marked "Crows' Nest," and seldom picks up passengers at Overland Park. According to several people waiting for a car east-bound, it was late and making up time. Meyershoff, it is thought, sought the station to get out of the cold and was talking to the others, and that when

the car came around the curve, which is on a down grade, Meyershoff started across the tracks.

Sparks from a passing engine caused a fire at the plant of the Mentello Brick Company at Reading, Pa., recently. The loss is covered by insurance.

The Newburg, (Ore.) Brick and Tile Company has purchased a five-ton electric truck, which will greatly facilitate their work in the delivery of their brick.

A. Bonnett, of Pueblo, Colo., is interested in a project to establish a brickmaking plant at Rocky Ford, that state, where he has 125 acres containing an almost inexhaustible supply of clay of a superior quality.

John H. Waters, W. H. Hill, Joseph Waters and Bruce H. Campbell have purchased the Apollo Silica Brick company's plant at West Apollo, Pa., and will improve and operate it. The investment is said to represent \$30,000.

The Sixela Brick, Pottery and Tile Co. will erect a plant at Texline, Texas, to have a daily caacity of 60,000 brick. The buildings will be fire proof throughout and will be equipped with modern machinery and appliances.

M. J. Osborne & Sons write that they would like to have a drain tile factory erected on their farm near Nashville, Tenn. They use forty or fifty miles of drain tile a year. Interested parties should address them at 1018 Second avenue, South Nashville, Tenn.

The Enamel Vitriified Brick company was incorporated recently at Toledo, Ohio, by J. J. Urschell, T. M. Dotson, C. E. Holden, George C. Penny and E. S. Smith, with a capital stock of \$100,000. The company proposes to manufacture by a new process enamel and face bricks, floor and metal tile and metal floorings.

Knudt Newton, an employe of the American Brick & Tile Co., at Mason City, Ia., was struck by a clay car and killed instantly. He was walking down an incline and an engine, which was switching in the yard, made so much noise that evidently he did not hear the car coming in time to get out of the way. He was married and leaves a family.

A charter incorporating the Lethbridge Brick Company, of Sault Ste. Marie, Mich., is being sought by a company composed of D. P. McPhail, Kenneth Wright, W. W. Lethbridge and C. B. Sexsmith. The company has an authorized capital of \$20,000 and on the granting of the charter will absorb the present brick plant of W. W. Lethbridge and install a complete modern brick making plant.

About eight years ago J. B. White, of Cannellton, Pa., purchased the Coleman Clay plant at that place, which was in a badly run down condition. By careful and prudent measures, improving and building up by degrees, he finally found himself in possession of a good money-making one-pan plant, with a market beyond his capacity to supply, and has just now installed another of Stevenson's heavy duty 9-foot pans and a 40-foot elevator to supply the demand for his product.

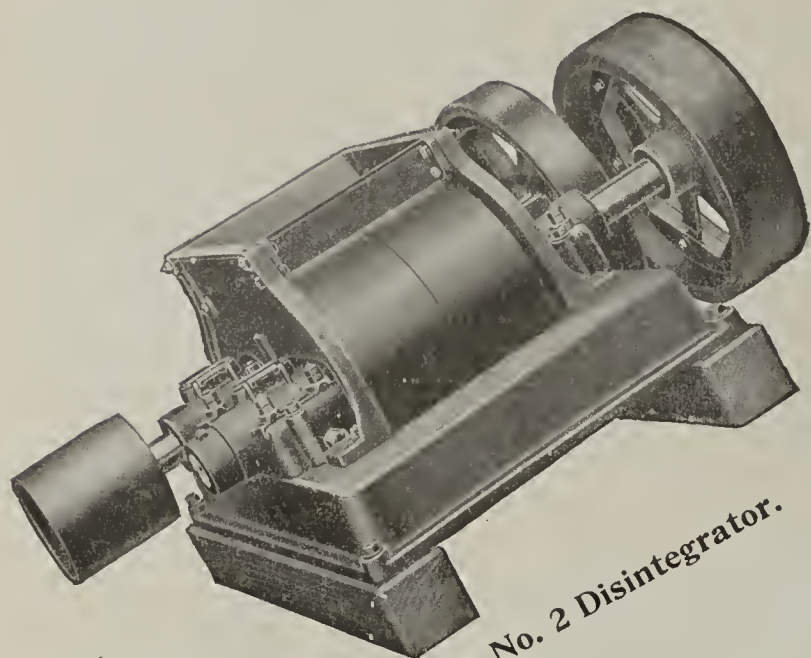
Through a most deplorable accident, Jno. J. Starr, the efficient secretary of the Robinson Clay Product Co., of Akron, Ohio, was recently bereft of his oldest daughter, a lovely and accomplished young lady. The unfortunate girl accompanied by her young sister, stood on a street corner, awaiting passage, when a rapidly driven automobile veered from the street, broke through intervening shade trees and struck the girls, killing one outright and injuring the other badly, but not beyond recovery.

When the Stevenson Co., Wellsville, Ohio., installed their machinery in the East Ohio Sewer Pipe Co.'s model plant at Irondale, Ohio, they scarcely expected the original installment would be able to manufacture all the pipe those hustlers would sell, though it has done wonders. So it is not surprising that another of their wet pans is soon to be installed, increasing the capacity of the works this much. It has been but a short time since the East Ohio installed one of the Good Road's powerful crushers to help out.

Tile Underdrainage.

By J. J. W. Billingsley. Price 25 Cents.

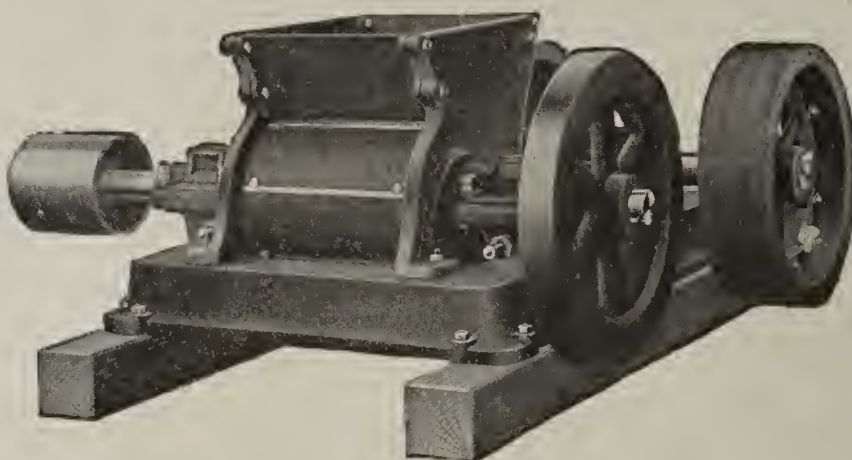
A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.



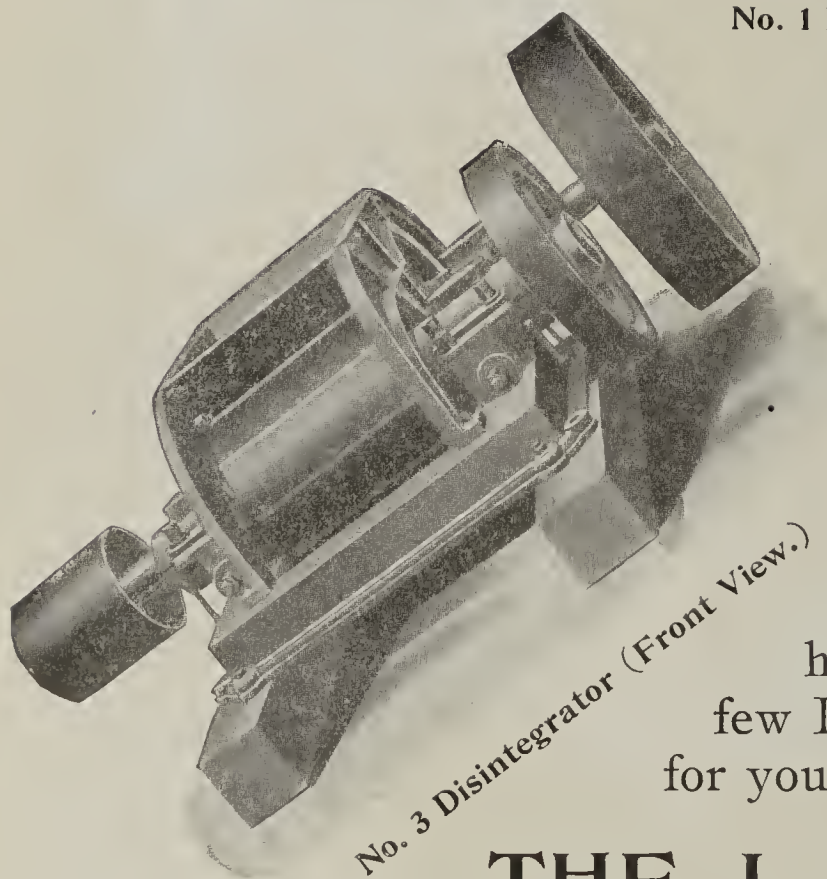
No. 2 Disintegrator.



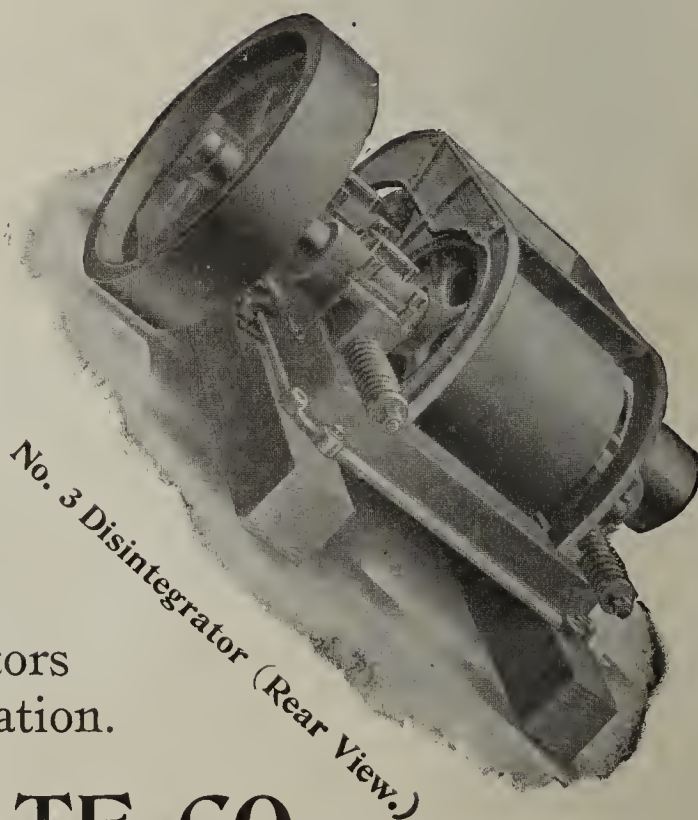
No. 2 Disintegrator (Interior View.)



No. 1 Disintegrator.



No. 3 Disintegrator (Front View.)



No. 3 Disintegrator (Rear View.)

We
present
herewith a
few Disintegrators
for your consideration.

THE J. D. FATE CO.
Plymouth, Ohio

A. E. DAVIDSON, Eastern Representative
Room 6060, No. 1 Madison Ave., New York

Mention THE CLAY-WORKER.

The
CLAY-WORKER



Published By
T.A. RANDALL & CO. INDIANAPOLIS.

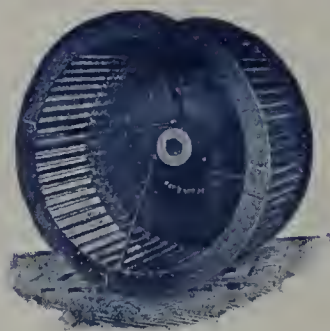
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Single Copy, 25c

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THE "Sirocco" FAN FOR THE DRYER

TRADE MARK.



"SIROCCO"
Patented Fan Wheel

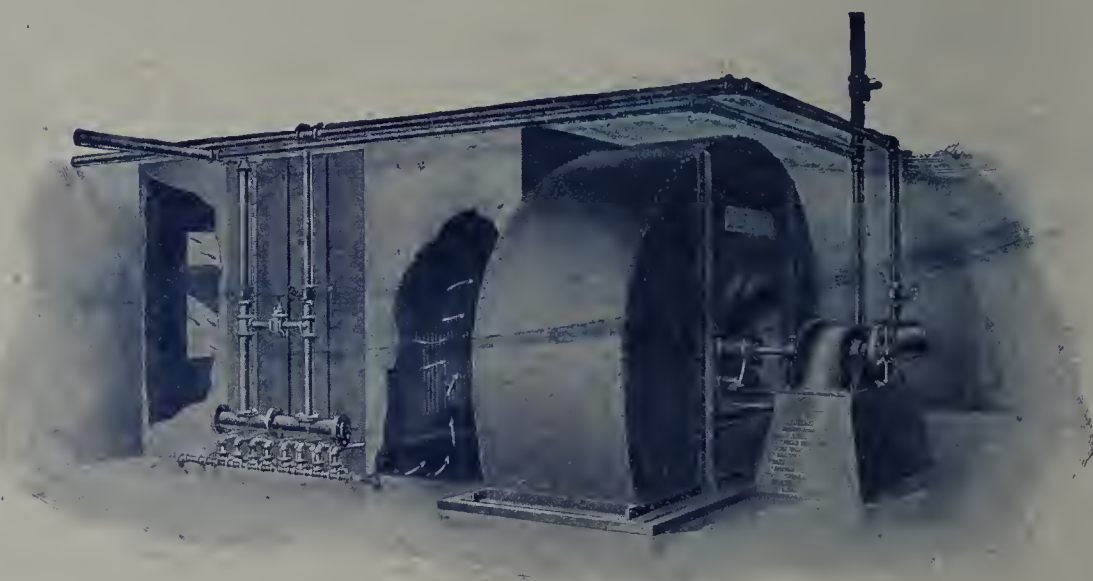
This new Turbine Type Fan embodies many features making it especially adapted to both Waste Heat or Steam Dryers. A "Sirocco" Fan installed in connection with Tunnel Dryers of any design will overcome the trouble usually experienced due to poor circulation and the inability to remove moisture laden air. This will immediately appeal to owners of "lame dryers."

Manufacturers of Clay Products are evincing much interest in the subject of mechanical draft for kilns in place of individual smoke stacks. We can solve your draft problems with "Sirocco."

"Sirocco" Fans are used exclusively with the SCOTT SYSTEM OF DRYING WITHOUT A DRYER—ALSO THE SCOTT-SIROCCO CONTINUOUS UP-DRAFT KILN.

"A B C" Steam or Furnace Drying Equipment

Where a plant lacks the number of kilns necessary to supply waste heat continuously, we install auxiliary exhaust steam coils to make up the deficiency. Occasionally we find that exhaust steam is not available, and special furnaces are designed by us for use only when no kilns are cooling.



"A B C" Waste Heat Fan With Auxiliary Exhaust Steam Coils

"A B C" Waste Heat Drying Apparatus

For years the application of a specially designed Exhaust Fan, drawing heat from cooling kilns and discharging same into progressive tunnel dryers, has been recognized as a practicable and fuel saving scheme. In hundreds of yards the cost of drying has been materially reduced, and the quality of product perfected. Temperature and circulation are under perfect control.

After all—not merely schemes, nor even apparatus, but above all, RESULTS. "That's us."



Typical Waste Heat Fan

AMERICAN BLOWER COMPANY
DETROIT, MICH.
U. S. A.

Ablest Engineering Organization in the Blower Business—Operating three large plants devoted exclusively to the manufacture of Fan System Drying Apparatus, Ventilating and Mechanical Draft Appliances, Automatic Return Steam Traps, Electric Light Plants, etc.



AUGER BRICK MACHINES

Chambers Brothers Company, Philadelphia, Pa.

THE USE OF CHAMBERS BRICKMAKING MACHINERY

**Means More than Merely the Purchase
of a Good Machine.**

It means also the securing of a continuous service in which recognition of a customer's interest and an effort to promote that interest is identified with our own success.

Many of our business friends have received such service for years.

We are seeking new connections based upon this principle. We have increased our plant facilities, not with the expectation of securing the "other half" of the Auger Machine business, nor even of becoming a "world power" in the stiff mud line.

We are meeting the demands of a normal, healthy growth, providing for a reasonable further development of inventions in our chosen field, and adopting methods and improvements that tend to better and cheapen the handling of our product. We are safeguarding the drawings and machinery records of some of the best and most successful clayworking establishments in the world.

We think this is worth while and expect to profit by it, as well as insure continued prompt and reliable execution of our customers' orders.

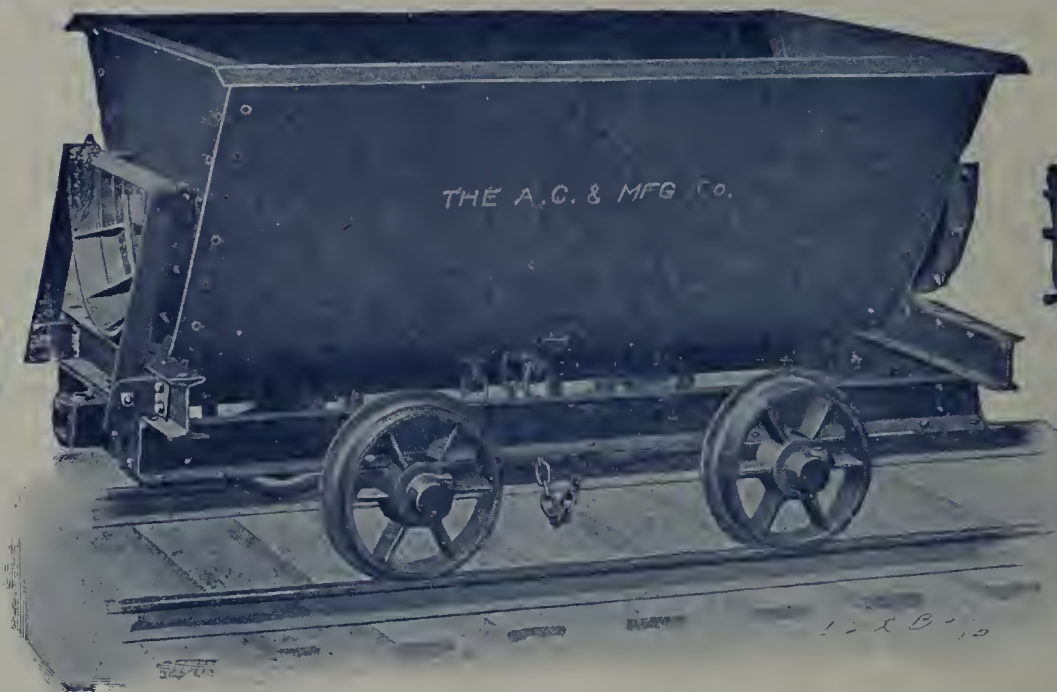
These facilities are at your service.

CHAMBERS BROTHERS COMPANY

BUILDERS OF

CLAYWORKING MACHINERY

PHILADELPHIA AND CHICAGO.



RAIL,
SWITCHES,
FROGS.

CARS FOR BRICKYARDS, QUARRIES, CEMENT PLANTS.

TURNTABLES,
WHEELS,
AXLES.

THE ATLAS CAR & MFG. CO.,
CLEVELAND, OHIO.

The Taplin-Rice-Clerkin-Co.

The Machinery Folks of Akron, Ohio, U. S. A.

STOP

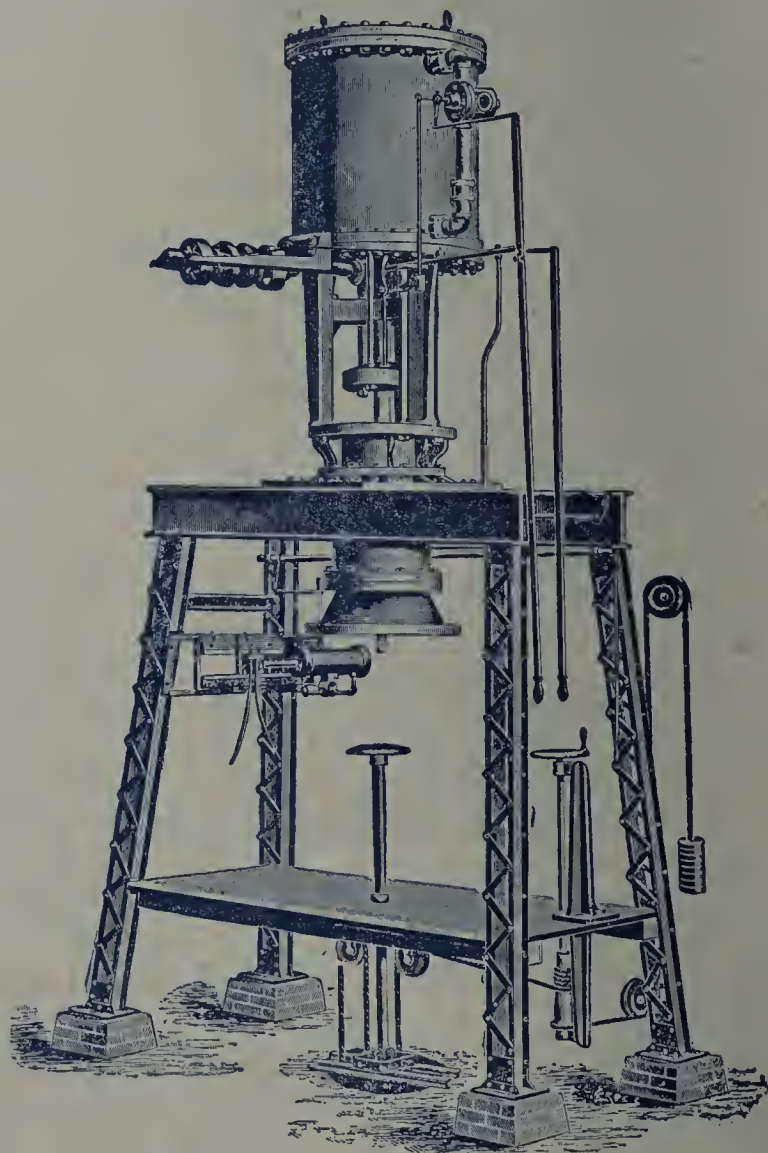
at Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
White Hall Sewer Pipe Co., White Hall, Ill.
Lehigh Clay Product Co., Lehigh, Ia.
The Denny, Renton Co., Seattle, Wash.
The Gladding-McBean Co., San Francisco, Cal.
The Pacific Clay Products Co., Los Angeles, Cal.
W. S. Dickey Clay Mfg. Co., Kansas City, Mo.
Blackmer & Post Co., St. Louis, Mo.
Post Pipe Co., Texarkana, Tex.
at San Antonio Sewer Pipe Co., San Antonio, Tex.

LOOK

Henry Stevens Sons & Co., Macon, Ga.
Pomona Terra Cotta Co., Pomona, N. C.
Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.

LISTEN

to British Columbia Clay Products Co., Vancouver, B. C.



Send for Catalog No. 27.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

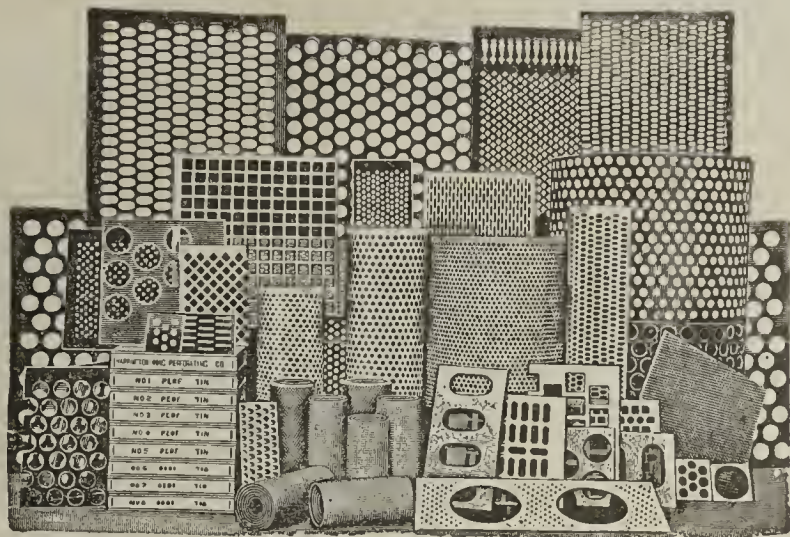
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

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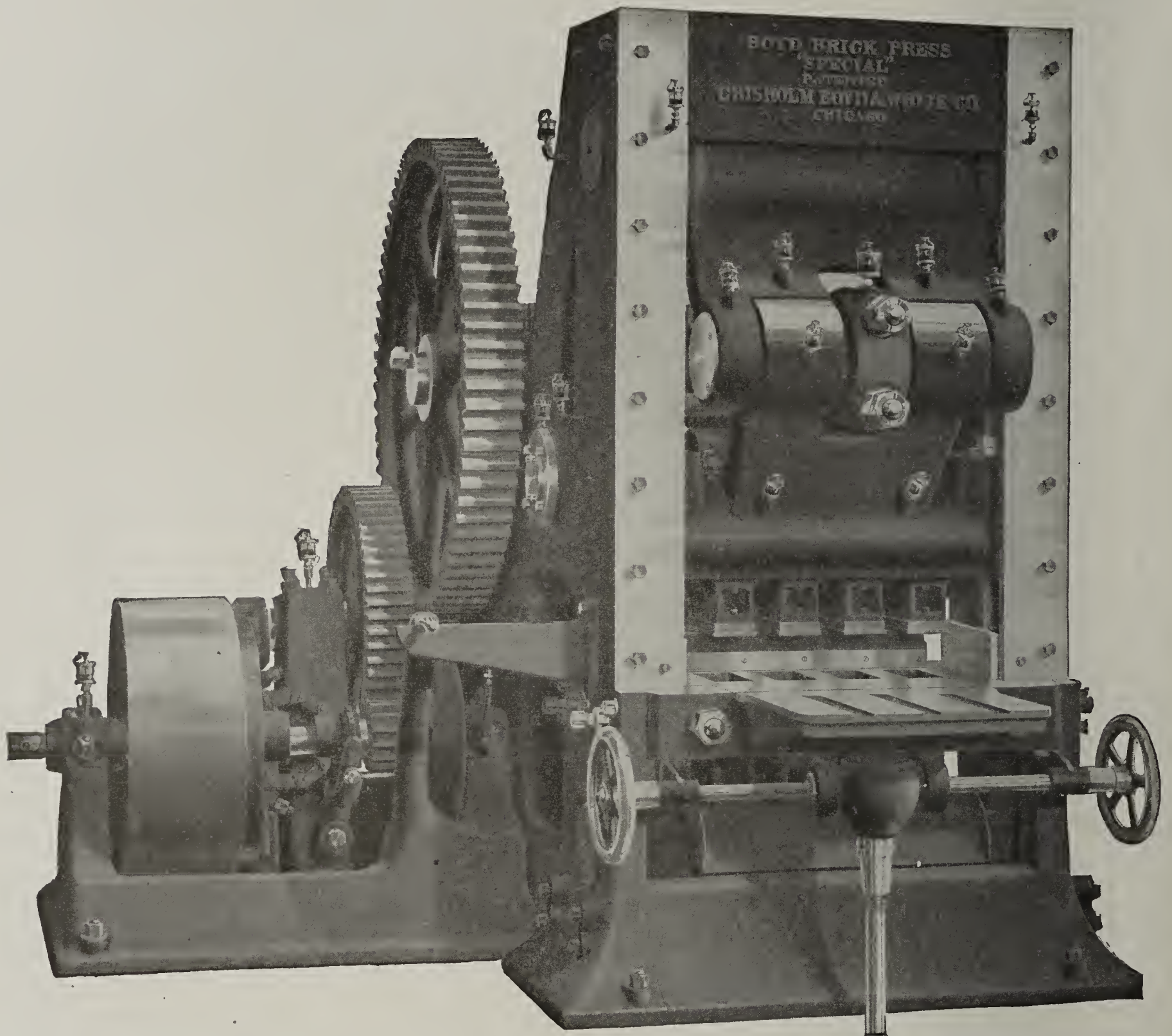
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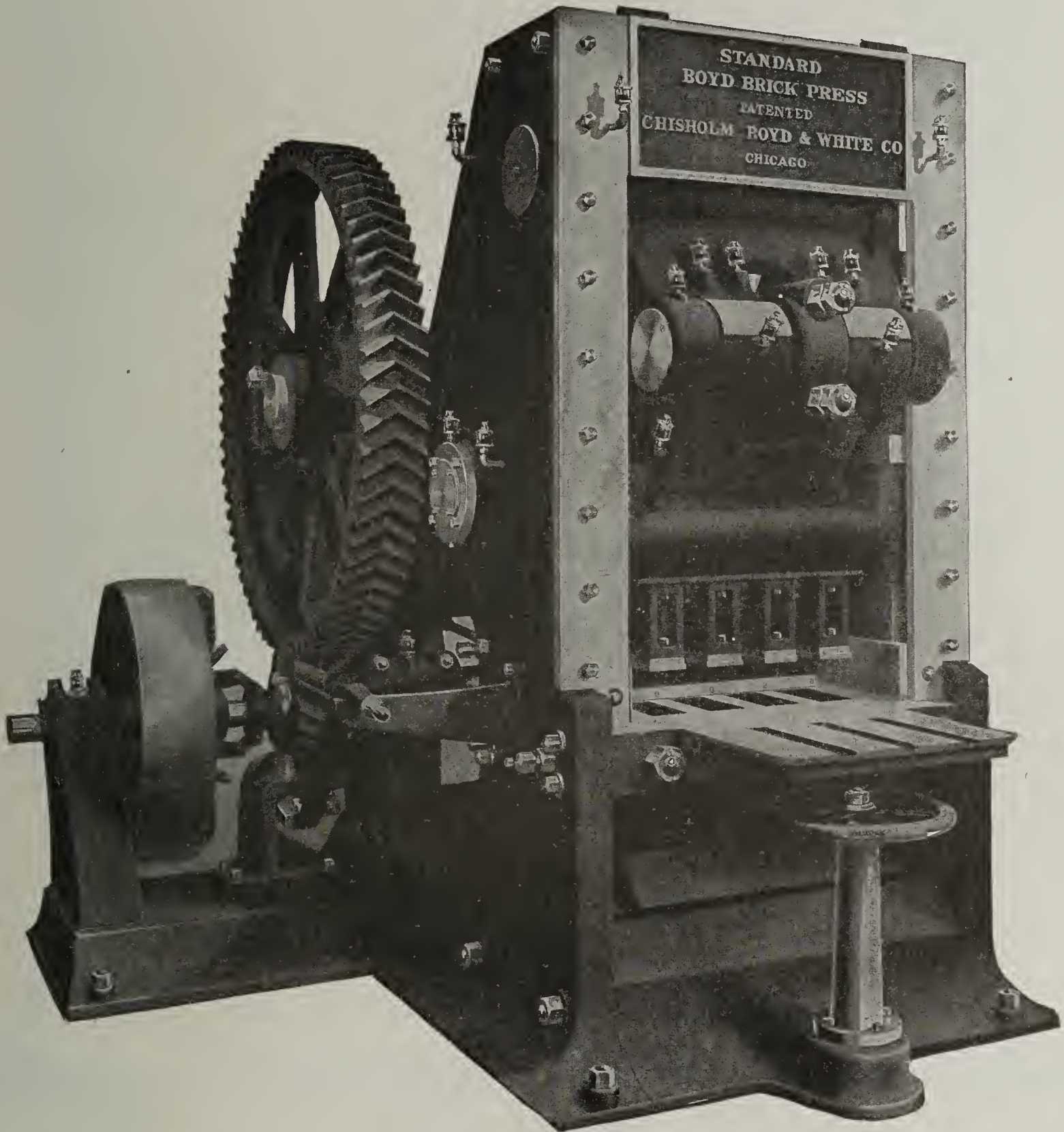
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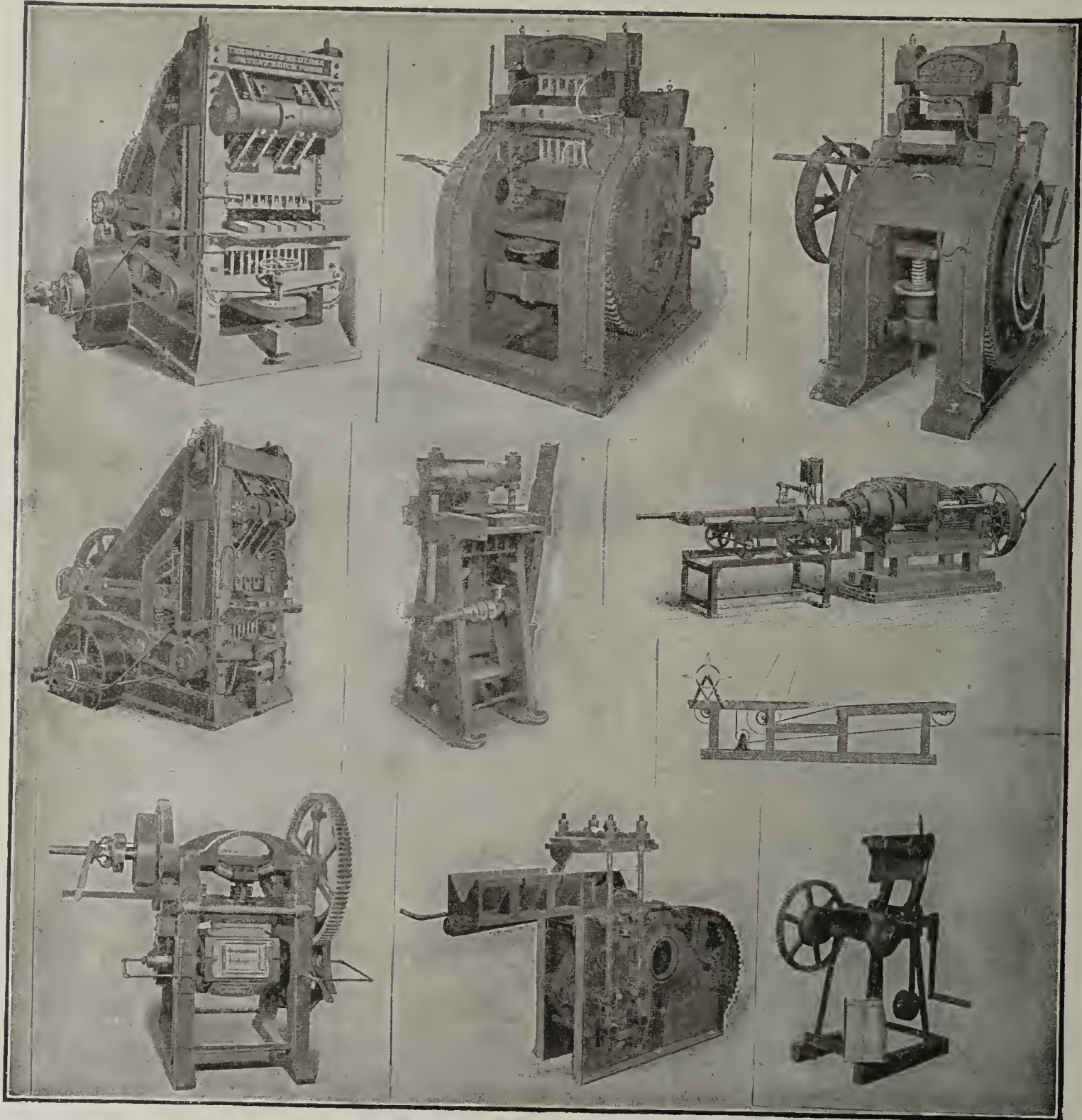
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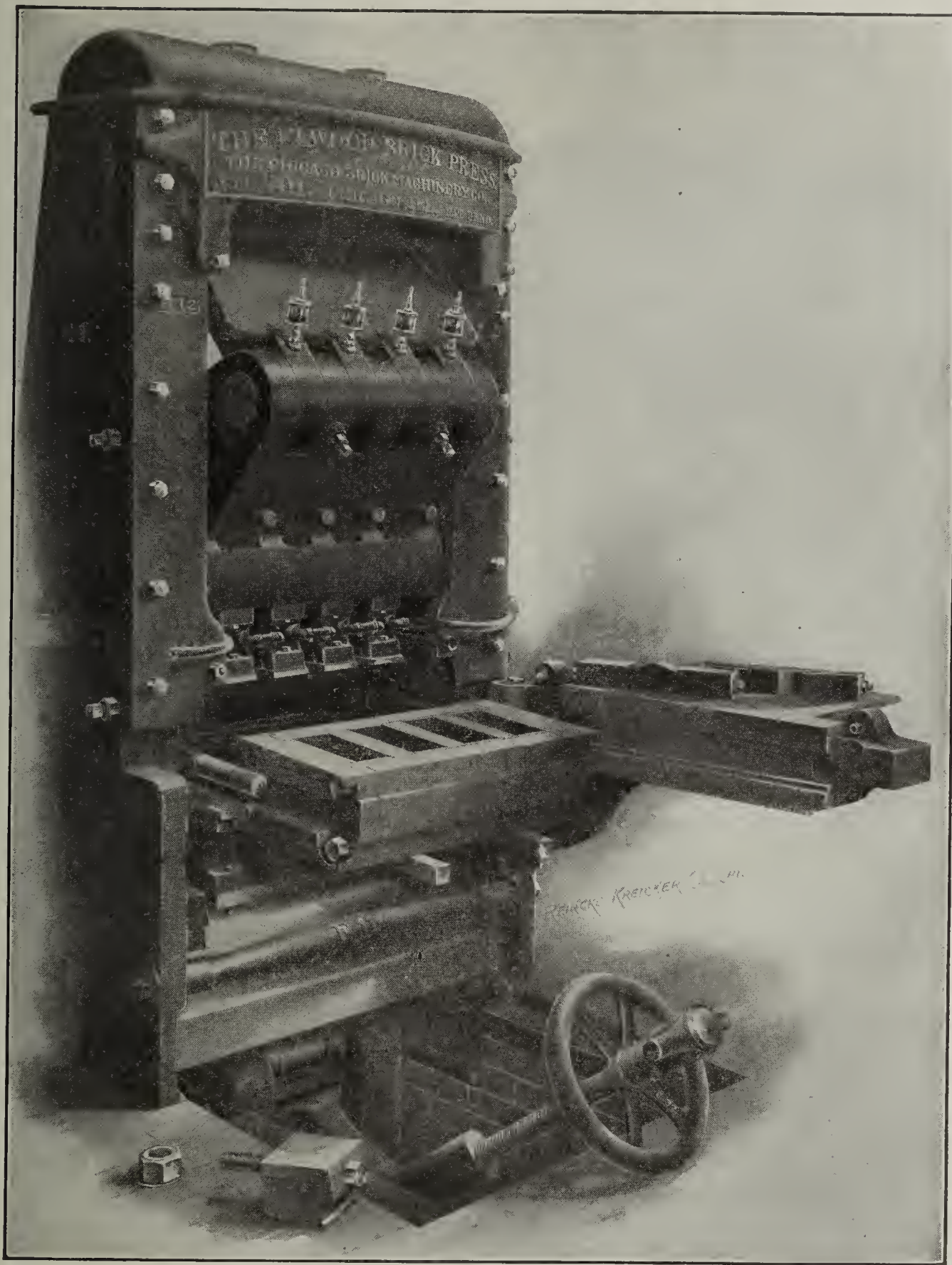
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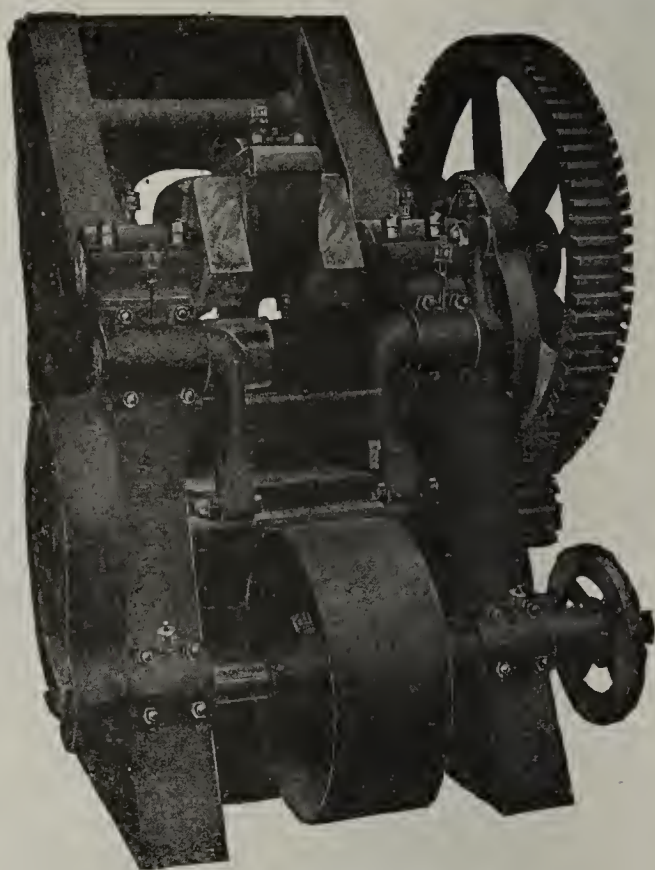
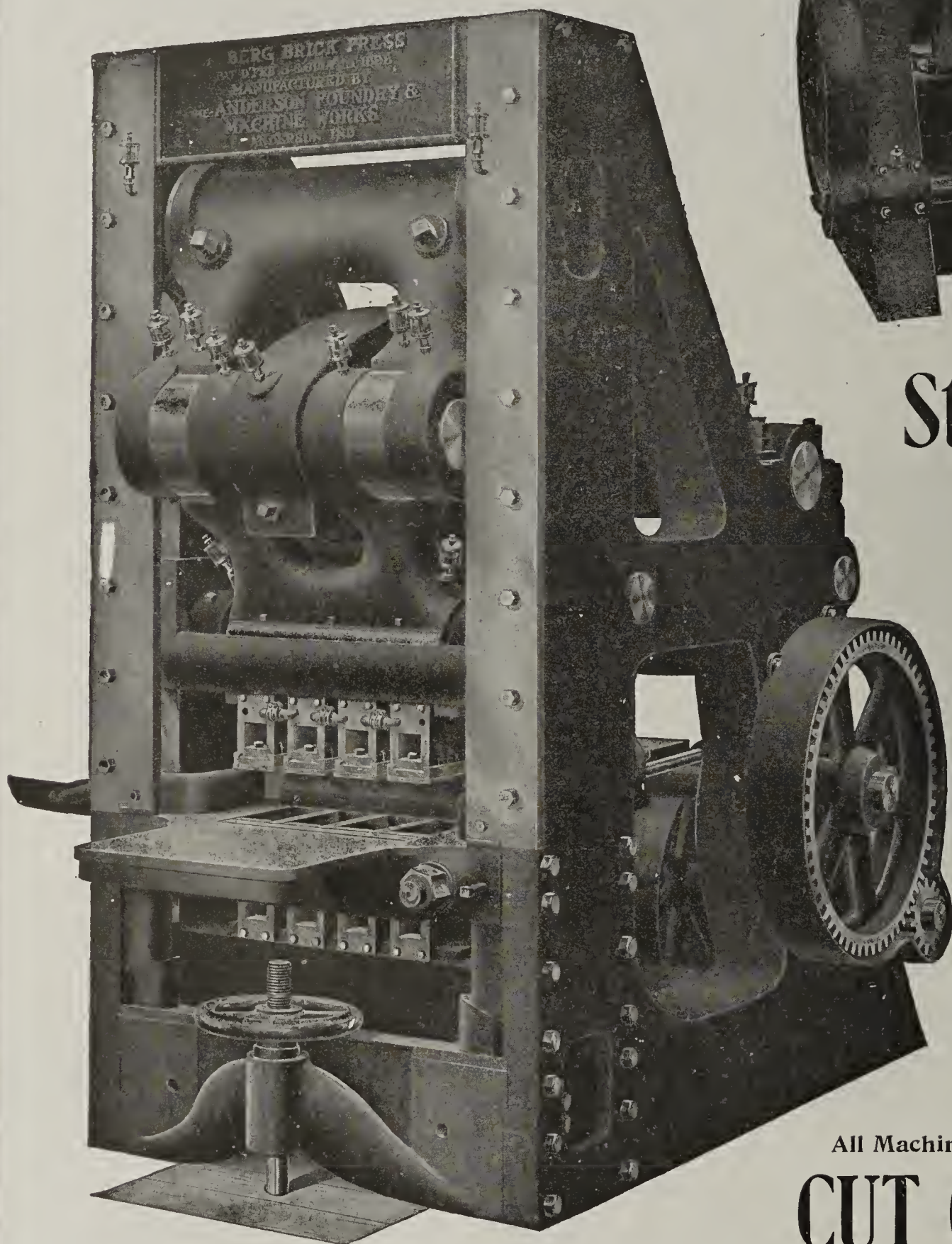
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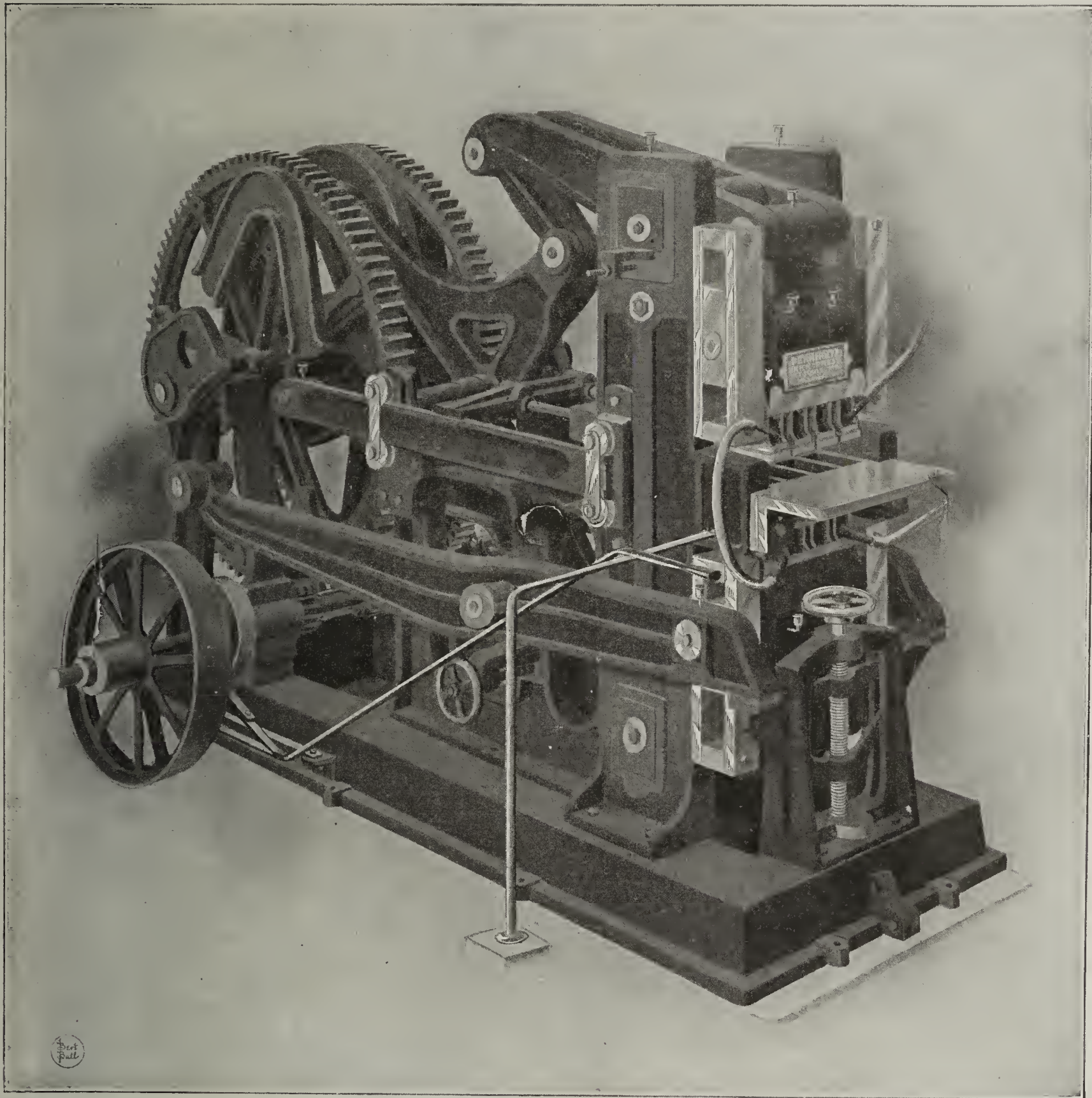
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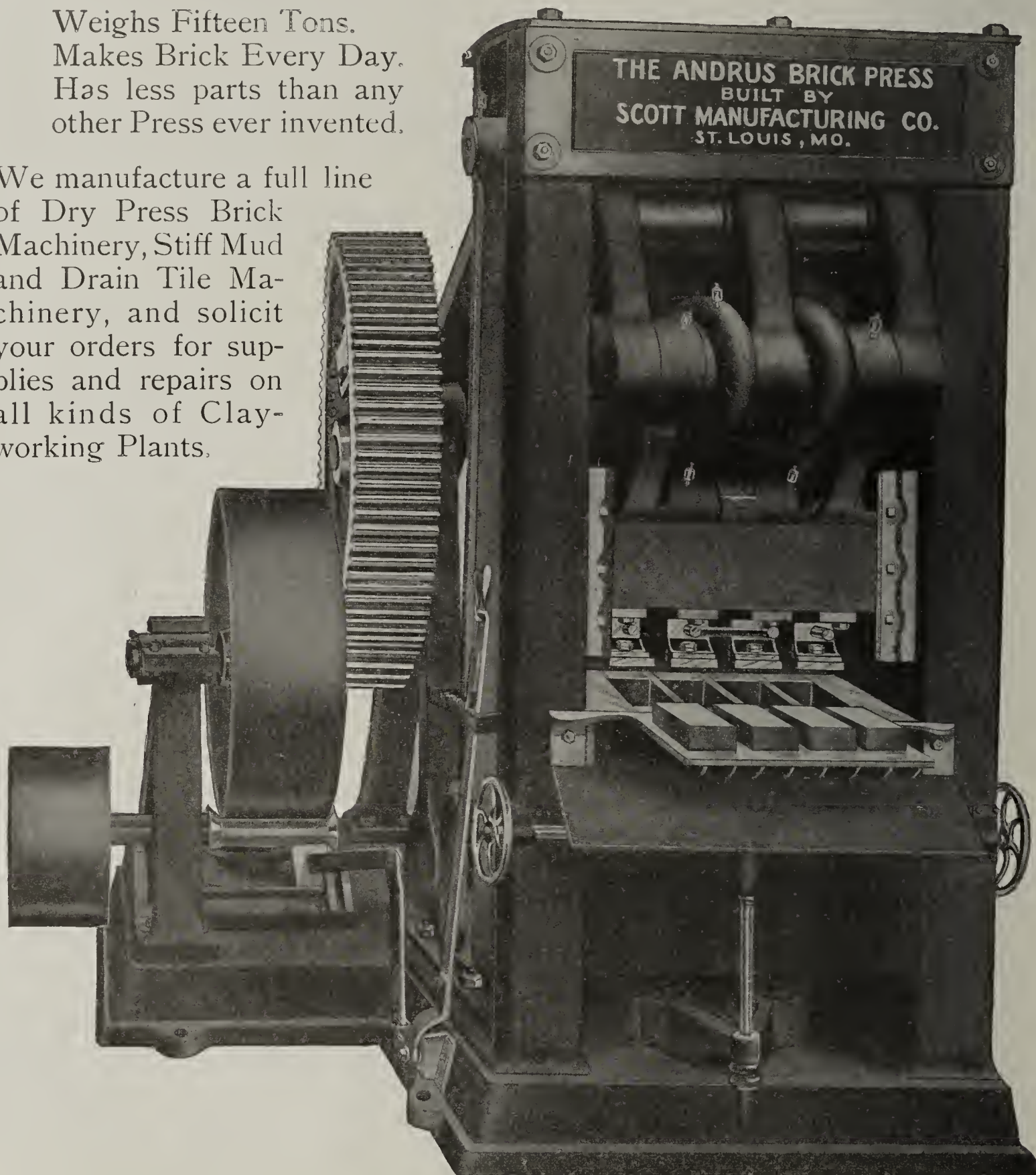
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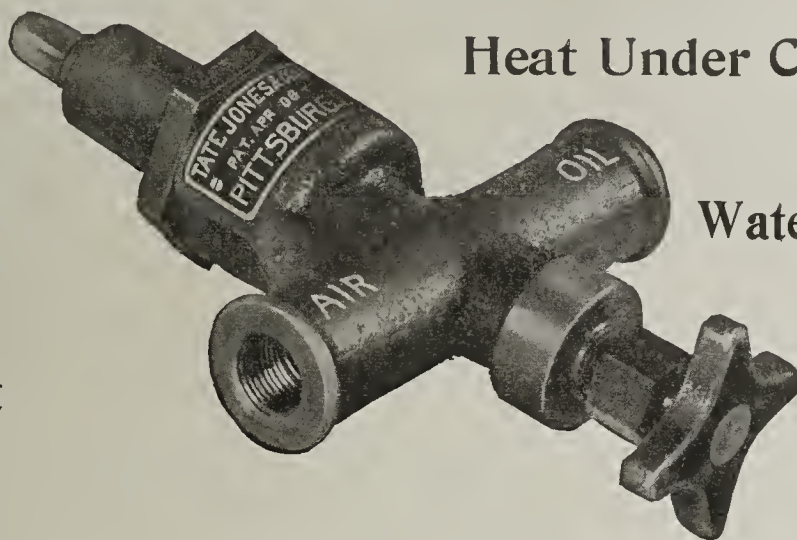
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Whoever said that was a back number—a dusty member of antiquity. It is not a text which appears in the business curriculum of the modern man who does things.

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Publicity has brought results—brought us a great many actual orders and stimulated country-wide interest in our simple but effective method of handling these commodities. We may truthfully add that more orders have been placed on our books the past year than in any previous period of our existence.

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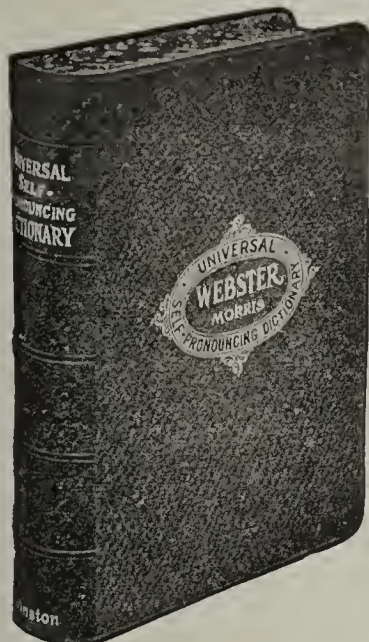
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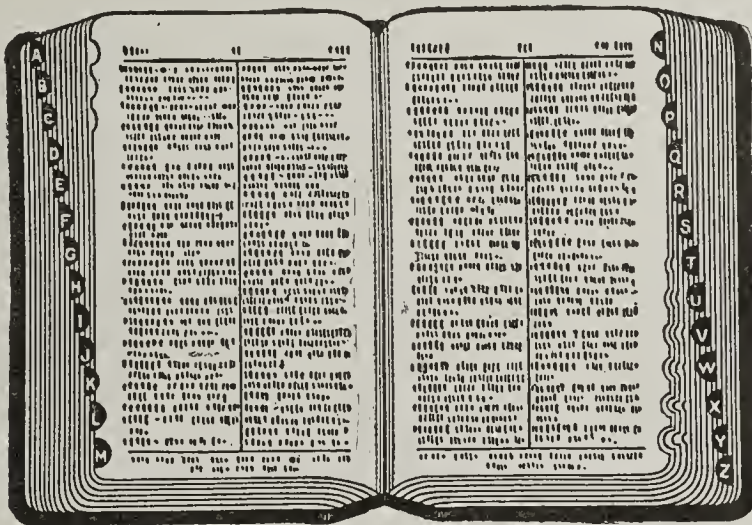
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NOAH WEBSTER

and other Lexicographers, thoroughly modernized by
CHARLES MORRIS

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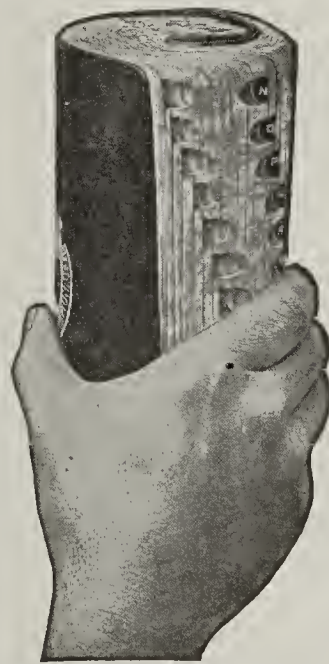
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Each Word and Its Derivatives are separately indexed instead of the suffix words and prefix words being crowded in with the definitions, an expedient used to save space, but with a loss of clearness and utility.

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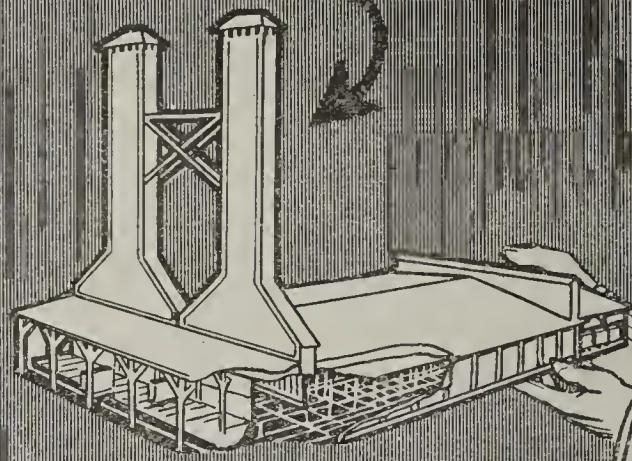
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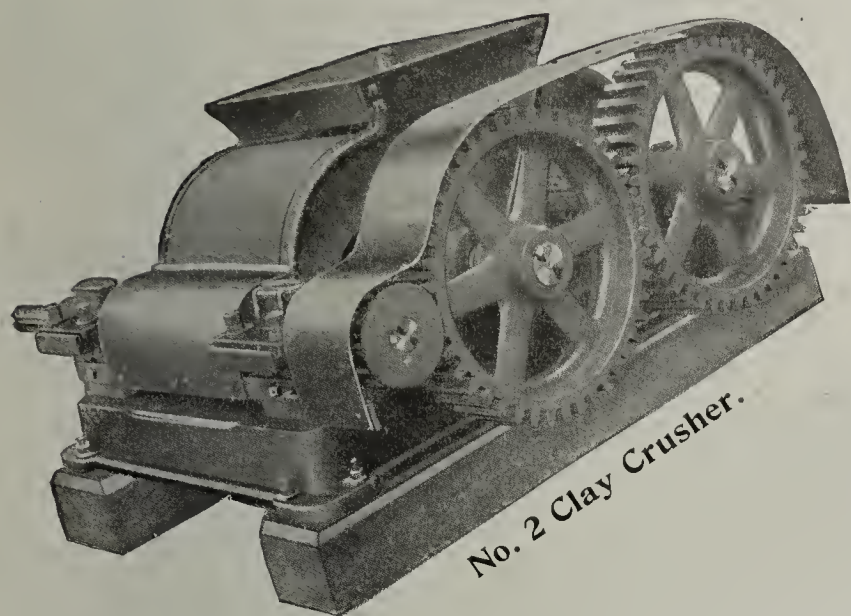
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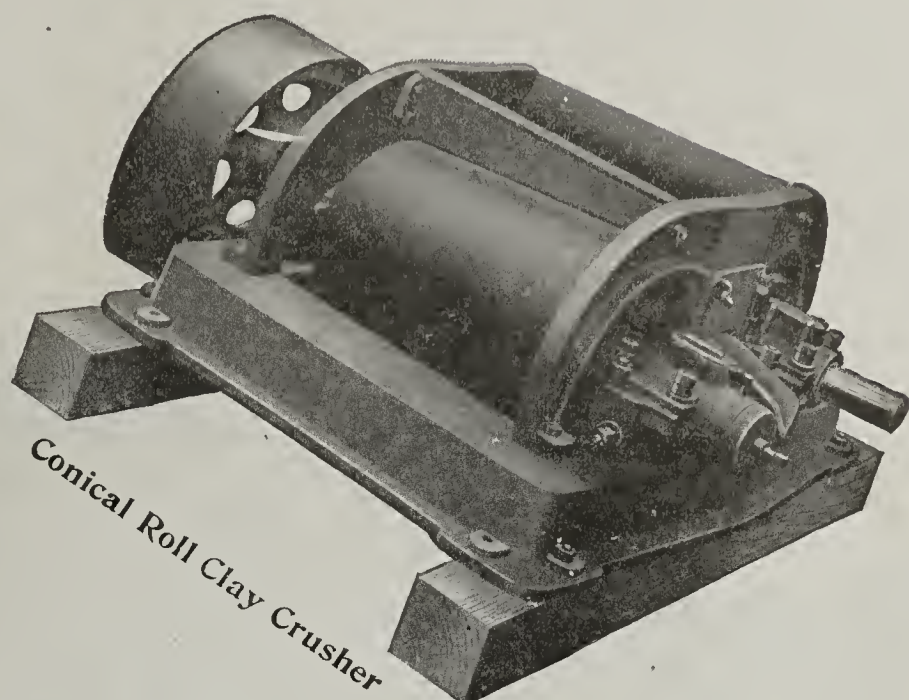
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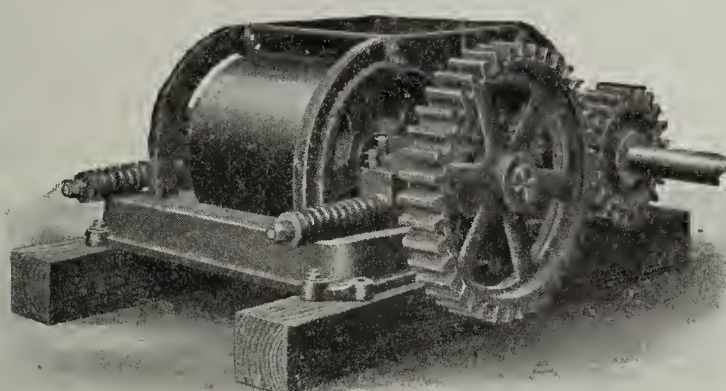
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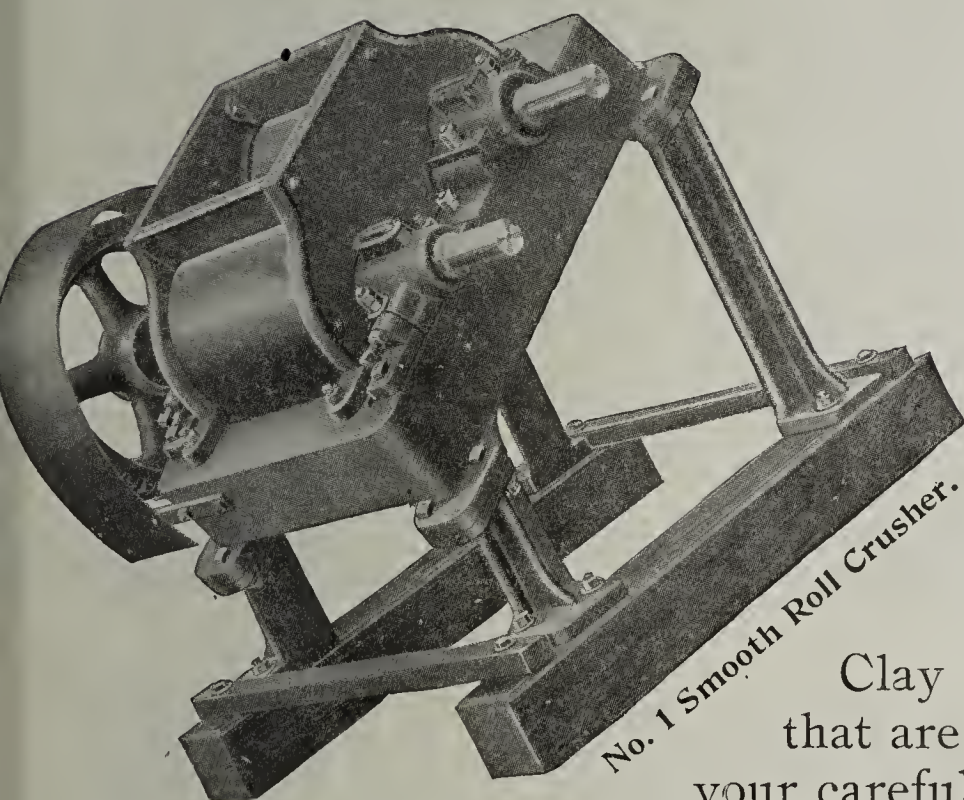
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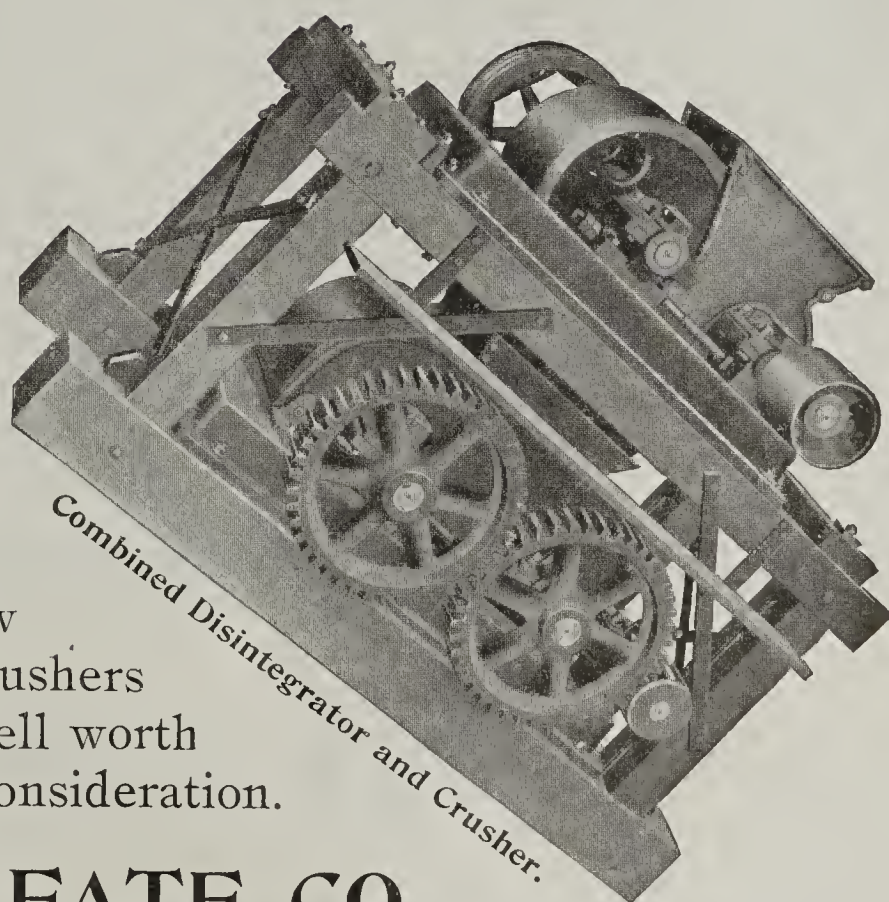
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No. 3 Clay Crusher.



No. 1 Smooth Roll Crusher.



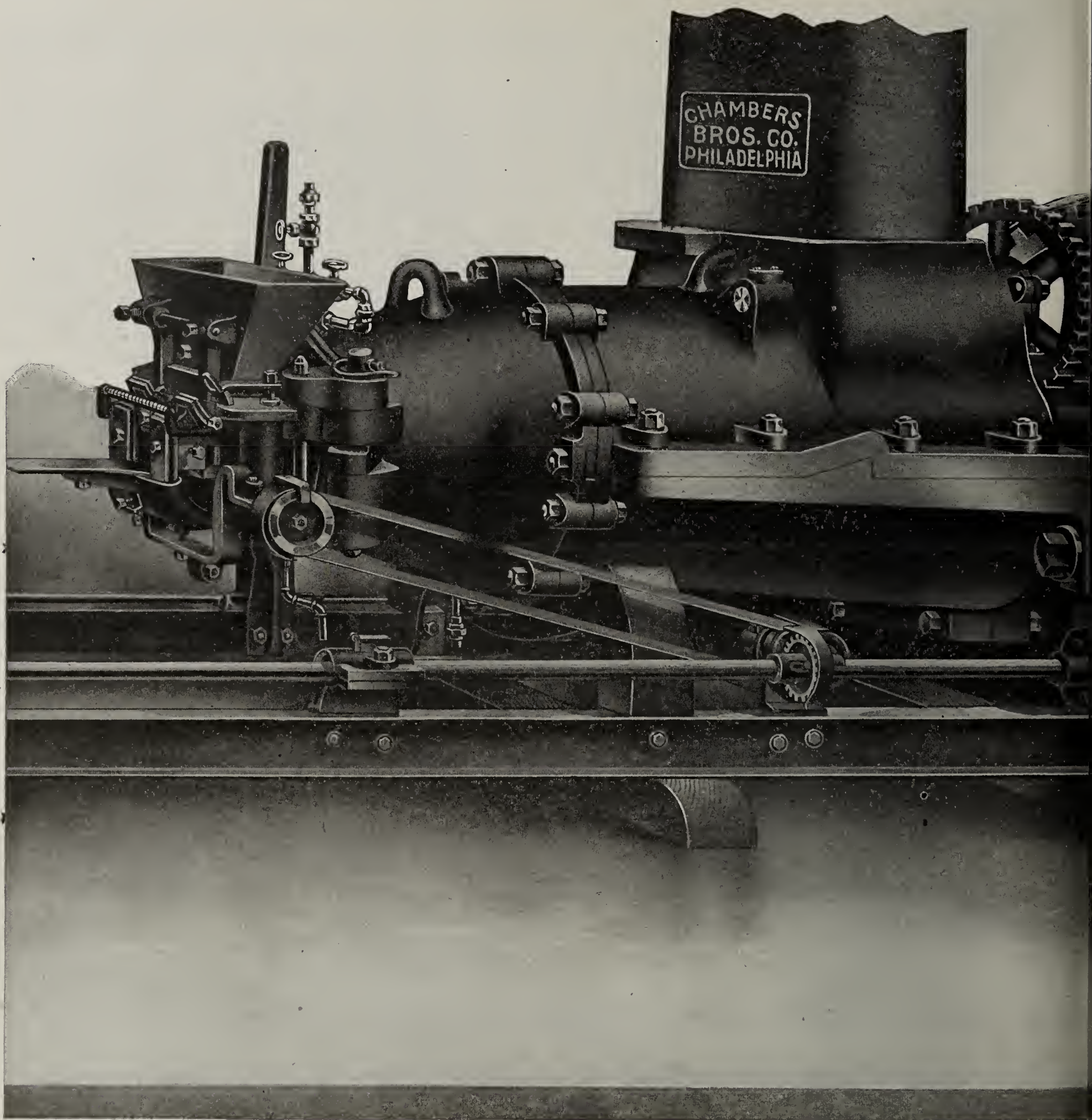
Combined Disintegrator and Crusher.

A few
Clay Crushers
that are well worth
your careful consideration.

THE J. D. FATE CO.
Plymouth, Ohio

A. E. DAVIDSON, Eastern Representative
Room 6060, No. 1 Madison Ave., New York

See ads on pages 726 and 727.



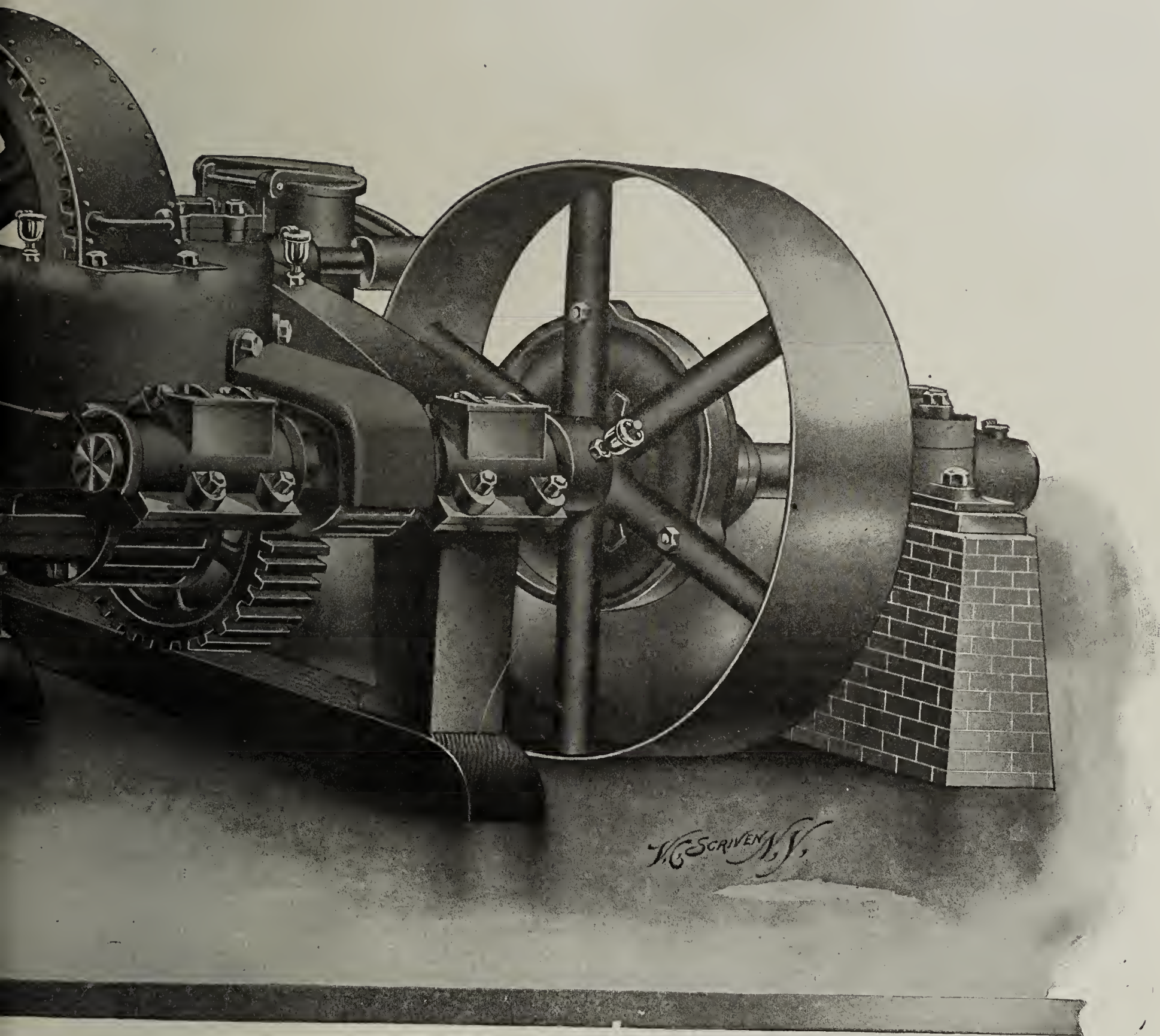
AUGER BRICK

SEVERAL SIZES

Fifty-Second and Media Streets,
Philadelphia, Pennsylvania.

Chambers Brothers
Company.

Mention THE CLAY-WORKER.



MACHINES

BUILT BY

Chambers Brothers
Company,

524 West Jackson Boulevard,
Chicago, Illinois.

Mention THE CLAY-WORKER.

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NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: § 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—Eighty 20-inch chilled wheels, 3-inch face, 1-inch flange.
ROCHESTER BRICK & TILE MFG. CO.
12 2 d Rochester, N. Y.

WANTED—Second-hand soft mud, horse or steam power brick machine.
Address M. M. LOCKARD,
12 1 dm Meridian, Miss.

FOR SALE—One American Blower Company 100-inch $\frac{3}{4}$ housed fan, used less than one week.
TUNA VALLEY PRESSED BRICK CO.,
12 tf d Bradford, Pa.

WANTED—Position as superintendent of brick plant. Experienced fire brick, silica and building brick. Can take entire charge and dispose of product. Address BOX 12, S. O.,
12 1 c Care Clay-Worker.

FOR SALE.

Martin brick machine, pug mill, shafting, pulleys, Martin steam dryer, steel pallets with cable system, all complete. 33,000 daily capacity. All as good as new.
F. H. EGGERS,
12 tf d Cleveland, Ohio

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address BOX 8, R. B. C.,
12 tf d Care of Clay-Worker.

FOR SALE.

One kiln tile plant, located east of Toledo. Good clay, fine market, dwelling house, steam heat, Fate machinery. Plant modern in every respect. Will sell whole or part interest cheap. Address BOX 9, J. L. C.,
9 3 cm Care Clay-Worker.

FOR SALE.

The best brick proposition in the United States. Southern location, healthful climate, good town and schools. Can work year round. Property consists of 800 acres coal, with vein of black curly shale 5 feet thick underlying. Suitable for fine pressed brick or anything made from clay. New plant on railroad, at mouth of mine. Also here other veins of plastic clay, red shale and silica rock. Owned by inexperienced men. Bargain for quick buyer.
BOX 447,
11 1 d Care Clay-Worker.

FOR SALE.

Paving brick factory in operation; well located. For particulars address BOX 11, City.
11 2 d Care Clay-Worker.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CONTRACTING CO.,
10 tf d Zanesville, Ohio.

FOR SALE—One tile and brick machine, Freese & Co. make; has been used eighteen months; one 60 h. p. slide-valve Atlas engine. Will sell cheap.
PORTLAND DRAIN TILE CO.,
11 3 c Portland, Ind.

SITUATION WANTED—By a first-class brick burner, on a down-draft kiln, face brick proposition. Good on red, buff, mottled or flash. Willing to assist Superintendent. Address KNOWLEDGE,
12 1 d Care of Clay-Worker.

FOR SALE—Soft mud brick plant; 30,000 capacity, with racks and pallets for 180,000. Machinery in first-class condition. Located in town of 35,000. Death of promoter cause for selling. Address B. G. S.,
12 1 cm Care of Clay-Worker.

FOR SALE.

Brick plant; shale clay; 30,000 capacity; on paved street in city of 30,000. Local demand for practically entire output. Owner has other business and wants to dispose of this. A rare chance to get a good paying plant located just right.
BOX D 21,
11 2 L Care The Clay-Worker.

FOR SALE.

Having changed to stiff clay process, we offer for sale the brick presses and other machinery formerly used in our Hydraulic Press Brick Plant at Canandaigua, N. Y.
NEW YORK PRESS BRICK CO.,
27 St. Paul Street,
10 3 d Rochester, N. Y.

FOR SALE.

One three-quarter housed, eight-foot wheel, 56 inches in width, extra heavy exhaust fan with water-cooled bearing next to fan, both bearings ring oiling, with wheel overhung; guaranteed to be in as good shape as when new. Was used only eight months. Capable of handling 70,000 cubic feet of air per minute at 160 r. p. m. Absolutely free from all rust. Price. \$150.00 f. o. b., Adel, Iowa. Fan cost \$375.00 when new. Of L. E. Rodgers manufacture.
DALLAS COUNTY BRICK AND TILE WORKS,
11 3 d Adel, Iowa.

FOR SALE—50 acres blue iron shale clay land for pressed brick manufacturing purposes. Good railroad facilities. Near Aberdeen. For particulars address H. W. ERICKSON,
315 N. Wash. St.,
12 1 cm Aberdeen, S. Dak.

WANTED—To interest additional capital or secure party to take active interest in a newly established brickyard, with a fine location, on Puget Sound. Near Seattle and Tacoma, with 10 acres of unexcelled shale. Address PUGET SOUND,
12 1 cm Care of Clay-Worker.

FOR SALE—One Potts machine, fully equipped, steam dryer and four burning kilns, brick plant. Will sell land and plant together, or sell plant separate. Only brick plant in our city of 25,000. Present corporation going out of business. Address E. LOUCK, President,
12 1 cm Richmond, Ind.

WANTED—Superintendent for a stiff mud face brick plant, 25,000 capacity. Must be experienced and capable of handling all manufacturing details. State age, experience, salary expected, and give references.
THE RICHARDSON-LOVEJOY ENGINEERING CO., Schultz Bldg.,
12 1 d Columbus, Ohio.

WANTED—A foreman or superintendent for common building brick yard. Location, southern New England. New Haven brick machine and steam dryer. Must be a first-class burner, thoroughly practical and experienced in taking full charge of men in all branches. Address BOX 11, X.,
11 1 d Care Clay-Worker.

AN EXCELLENT OPPORTUNITY.

A clay manufacturing plant, owning its factory and several acres of splendid clay land, enough for 50 to 75 years' run, and having almost a monopoly in large territory for its goods, wants to double the capacity of the plant, and to parties who will furnish the necessary capital the directors, all large stockholders, will secure loan or investment in stock by first mortgage bonds they now hold on company's assets.

Will also, if necessary, put up their stock as further security and will protect themselves by second mortgage. It is one of those cases where original capital was insufficient, and it fell on a few to add thereto three different times, and they have reached their limit. The goal will have been reached with little more capital; 150 cars behind orders right now. Strictest investigation courted. Good opportunity for man capable of taking the superintendency of plant. For full information address BOX 12, E. R.,
12 1 d Care of Clay-Worker.

(Continued on next page.)

FOR SALE—Brick and tile plant, at a bargain. Located south of Chicago. Everything in good condition and the very best of clay. Address

BOX 12, W. O. G.,
121 c Care of Clay-Worker.

FOR SALE—Cummer clay dryer, good as new. Perfect condition. A great bargain; very cheap. Full particulars on application. Address

BOX 12,
1211 Dryer, care Clay-Worker.

WANTED—By a thorough brick plant manager, with money, an opportunity to join local men with capital to build a new brick plant. Only persons with money need answer. Address

I. R. L.,
1211p Care of Clay-Worker.

WANTED—Position as manager or superintendent with good brick company; 12 years' experience, with best references. Will invest small amount in good concern. Address

BOX 12, D. A. F.,
121 cm Care Clay-Worker.

FOR SALE—Brick yard in Ohio; good railroad facilities; 30 acres shale; capacity 40,000. Practical man with \$4,000 can borrow balance from local bank on long time, or will trade for farm or city property. Address

ATTORNEY HOPWOOD,
11 tf d Kenton, Ohio.

IT'S A BARGAIN.

First-class stiff mud brickyard. No local competition. Demand for all brick it will make. A money maker. Town 5,000 population. Trade or sell. Fifty cents on the dollar for cash if taken soon.

GRIGGS-HOLLAND REALTY CO.,
12-1-cm Marion, Ill.

WANTED—First-class face brick setters; also a first-class man to take charge of our sorting and shipping department. Must understand their business thoroughly. To such we have a good position, with good wages, the year round. Married men preferred. Address

ELGIN-BUTLER BRICK & TILE CO.,
121 d Elgin, Texas.

WANTED.

Position by a practical clay man as superintendent or head burner of paving, face or common brick plant. Thoroughly understand every detail from clay bank to loading finished product. Can construct and remodel plant. Will run a plant successfully. All references.

Address BOX 12, EDWARD,
121 c Care of Clay-Worker.

WANTED—A first-class brickyard mechanic of experience; name references and state amount of experience had. Address

CHEROKEE BRICK COMPANY,
121 d Macon, Ga., Box 255.

FOR SALE—At \$400.00 a No. 1 Giant brick machine, with offbearing belt and end cutter. Now running and making 4,500 brick per hour.

CHAMPION BRICK CO.,
11 2 d Baltimore, Md.

WANTED—A drain tile factory to make tile for me on my farm near Nashville. Can use 40 or 50 miles of tile a year at proper price.

W. J. OSBORNE & SONS,
1018 Lee Ave.,
1211p So. Nashville, Tenn.

FOR SALE—Brick plant, with a capacity of 40,000 per day. Located on two railroads, with 15 acres of ground. Ill health of the owner the reason for selling. Address

BOX 12, W. M. F.,
122 d Care of Clay-Worker.

WANTED—Young or middle-aged man, thoroughly experienced and capable of handling face brick plant. Must have good habits and be able to handle men. References required. Address

BOX 12, BEAVER,
121 d Care of Clay-Worker.

FOR SALE—Complete set of brickyard machinery, consisting of one 4-mold Simpson dry press machine; one Steadman pulverizer, engine, boiler, shafting and pulleys.

GILLICK BROS.,
319 W. Steins St.,
123 d St. Louis, Mo.

WANTED—To locate a modern brick plant where there is suitable clay for building brick. Other things being equal, preference will be given localities offering inducements. Address

BOX 12, W. W. W.,
1211p Care of Clay-Worker.

FOR SALE OR LEASE—A big deposit of white clay recently discovered within 300 yards of railroad. Adjoining other successful clay properties. For further information address,
SO. MOUNTAIN MINING & IRON CO.,
121 dm Pine Grove Furnace, Pa.

A BARGAIN AT \$7,000.

A complete plant, consisting of two duplex dryers, holding 60,000 brick; 176 h. p. Ball & Wood engine; one 150 h. p. boiler; one Hercules, Sr., brick machine, capacity 40,000 per day; one mold sander; one disintegrator; one hoisting drum with cable; four 4-wheel iron brick trucks, 24-inch gauge; three dirt dump cars, 36-inch gauge, and 800 feet of No. 16 iron rail track. Can see everything in working order at Columbus. THE SCHMITT BRICK CO.,
121 cm Columbus, Ohio.

WANTED—Position as superintendent or manager of brick or tile plant. South or lower Middle West preferred. Thirty years' experience. Best of references. Address BOX 11, M.,
11 11p Care Clay-Worker.

BRICK MACHINERY FOR SALE.

190-ft. Jeffrey No. 110 chain pan conveyor; Renneburg 4-ft. 6-in. direct heat rotary dryer 40 ft. long; Richardson automatic scale, 400 lbs. capacity; Penfield 7-ft. and 9-ft. dry pans; No. 20 A plunger machine, sewer pipe press; Raymond "Columbia" steam press, No. 3 "Perfection" Carnell hand presses; 237 double six-deck brick cars, 33-in. gauge, 7 transfer cars, 4 turntables; 5,000 gal. steel pallets, rolled edges; 1 No. 51 two-way steel dump cars, 30-in. gauge; portable track; 100 light Colt's acetylene gas machine; 200 H. P. Fitchburg engine, 280 H. P. boilers, pumps, lubricators, pulleys, shafting, etc. Address

POWHATAN CLAY MFG. CO.,
122 d Richmond, Va.

FOR SALE

—Brick Yard Machinery.—

This machinery is all in good working order: some of it practically new, and will be sold at a reasonable price.

15 flat cars (steel), 3x5-foot deck, 24-inch gauge, Koppel Fig. 5151.

2 double track transfer cars, 36-inch gauge, Koppel Fig. 1398.

3 all-steel dump cars, 27-foot capacity, 24-inch gauge.

40 sections straight portable track in 15-foot lengths, 12-lb. rails, on steel ties, 24-inch gauge, "Koppel."

1 right-hand portable switch, 12-lb. rails on steel ties, 23 $\frac{3}{8}$ -inch gauge, Koppel Fig. 147.

1 5 $\frac{1}{4}$ x3 $\frac{1}{2}$ x5 Worthington Duplex pump.

1 5-ton Fairbanks platform scale.

1 Fairbanks platform scale, No. 1128.

6 400-lb. Dedrick hoisting tubs.

1 8-foot, Style F, Amer. Clayworking Machinery Company wet pan, 42x12-inches F. C. pulley, 44x8-inch Muller's.

1 6x16-inch Sturtevant cam crusher, No. 120.

1 Style A Henry Martin brick machine, capacity 40,000.

1 upright engine and boiler, 12 h.p.

1 steel tank, 3x4 feet, with man-hole, for 100 lbs. pressure; 350 feet standard fire hose and 2 nozzles.

1 Carnell repress.

1 Rogers planer.

1 Rogers band saw.

1 combination rip and cross saw,

1 grindstone.

1 200-light dynamo (Blake).

Rogers.

1 20 h.p. Dedrick engine.

6 brick trucks.

1 hand truck (platform).

1 8-foot wet pan, American Clay Machinery Company.

1 5 h.p. hoisting engine.

2 10-ton Fairbanks platform scales.

1 5-ton Fairbanks platform scale.

1 Imperial watchman's clock and 12 stations.

1 Raymond repress.

1 all-steel dump car, 18 feet capacity, 24-inch gauge. Koppel Fig. 1723.

For particulars address

P. O. BOX 27,
Albany, N. Y.

WANTED — Experienced off-bearers.
Give references.
HYDRAULIC PRESS BRICK CO.,
9 tf d Brazil, Ind.

A PRACTICAL, experienced man in every detail of the manufacture of face or paving brick, from the kiln to the office, is open for a position. Will give the best of references. Address
BOX 11, Panama,
11 tf d Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address,
FRANK P. CLEVELAND,
965 Adams Express Bldg.
9 tf d Chicago, Ill.

AN OPPORTUNITY

To get into business for yourself is offered by a brick manufacturer, who, on account of ill health, wants to pass the actual management to a younger man.

Yard manufactures ¾ million a season, is within 15 miles of a town of 30,000. Yard has supplied this town for the past ten years, and has a ready sale for all it can make. Is in daily operation.

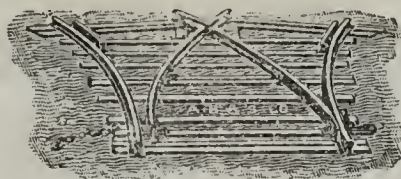
The right man, with experience, hustle and a little money, can secure an interest and feather his nest for the future. If you're the man with the qualifications, address

LOCK BOX 248,
9 tf d Care Clay-Worker.

FOR SALE.

Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order from the Best Red Label Music Wire. Sample sent on request.

P. MITTLER,
Robbins, Tenn.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.
THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

REBUILT ENGINES AND BOILERS.
ENGINES—CORLISS.

20x48 Wheelock, 18x36 Ohio. Heavy Duty, 14x42 Hamilton, 14x36 Vilter, 12x36 Allis, etc.

ENGINES—AUTOMATIC.

15x14 Erie, 14¼x16 Buckeye, 11x16x12 Buffalo Compound, 13½x15 Taylor, 13x16 Erie, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 10¼x14 Buckeye, 10x14 Noyes, 9x12 Russell, 7x10 Atlas, etc.

ENGINES—THROTTLING.

16x22 H. S. & G., 14x18 Sinker-Davis, 14x14 Lewis Vertical, 12x16 Reed, 12x14 Gibbs, 12x12 Wells, 10x16 Bass, 10x12 Oil Well, 9x12 Ball, 9x10 Reed, 8¼x12 Leffel, 7x10 O. & S., 6x8 Industrial, etc.

BOILERS—STATIONARY.

72x18 high pressure, 72x18 standard, 72x16, 66x16, 60x16, 60x14, 54x16, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, 36x12, etc.

BOILERS—FIRE BOX.

100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10, and 8 H. P., etc.

BOILERS—VERTICAL.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 H. P., etc.

HEATERS.

All sizes, open and closed.

PUMPS.

All sizes, Single and Duplex.

MISCELLANEOUS.

Saw Mills, Lath Mills, Edgers, Cut-off Saws, Re-Saws, Blowers, Exhaust Fans, Tanks, etc. Write for list.

Also full assortment of new machinery. Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers St., Cincinnati, Ohio.

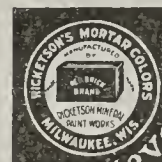
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**SHUMAKER
PATENT DOWN DRAFT KILNS**

Burns 99 Percent Hard Bricks
Old Kilns Remodeled

Plans and Yard Rights Cheap

J. H. Shumaker & Co.,
Hyndman, Pa.



They Never Fade

**Twenty-Five
Long Years**

of time and weather
have tried out Ricketson's
famous **Red Brick** brand

COLOR

For Mortar, Brick,
Cement, Stone, etc.
Proved to be absolutely
permanent. Red,
Brown, Buff, Purple
and Black.

Ricketson's Mineral Paint Works
Milwaukee, Wis.



**Elevator
Buckets**

We carry in stock at all times a large supply of Elevator Buckets, including Caldwell, Avery, Salem, Regular Riveted and various styles of Malleable Iron.

All sizes and gauges for handling different materials.

Special Buckets made to order.

Send for Catalog No. 34.

H. W. Caldwell & Son Co.
17th St. and Western Ave.
CHICAGO, ILL.

NEW YORK: Fulton Bldg.
Hudson Terminal, 50 Church St.
BOSTON: Oliver Bldg. 141 Milk St.

TO CLAYWORKERS AND BRICKMAKERS

Splendid opportunities are offered to the manufacturer of jugs, pottery, tile and bricks at Mobile, owing to the extensive market which may be reached from Mobile, and because there are large deposits of suitable clay at Mobile. Sites and locations of the raw material are on file in this office. Those desiring to go into the clay manufacturing business, or who desire to establish a branch factory may obtain all data through us.

MOBILE PROGRESSIVE ASSOCIATION, Dept. W.
Mobile, Alabama.

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address
PROFESSOR EDWARD ORTON, JR.,
Director of Department of Ceramic Engineering.
Columbus, Ohio.

Terms First-class
reasonable. references.

If you have trouble with Clay, Machinery
or Kilns, then consult

THE BRICKMAKERS' ADVISOR,
Julius J. Koch,

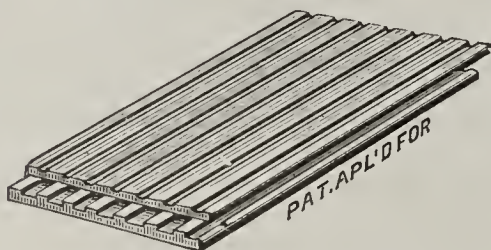
(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press
processes and down-draft kilns.

Contracts made contingent upon suc-
cess.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for
Interlocking Tiles, Dies for all shapes,
Hips, etc., in metal or plaster.

Special Roller and Auger Presses for
Shingles, Interlocking Spanish Tiles, Au-
tomatic Shingle Cutting and Punching
Tables. Special Tile Tables.

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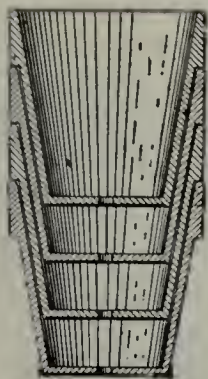
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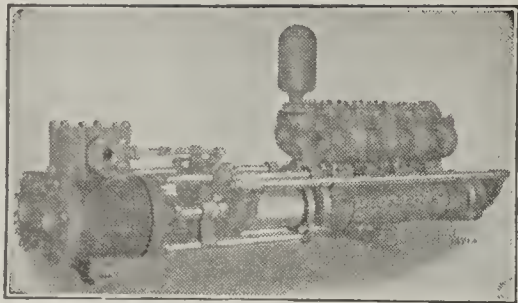
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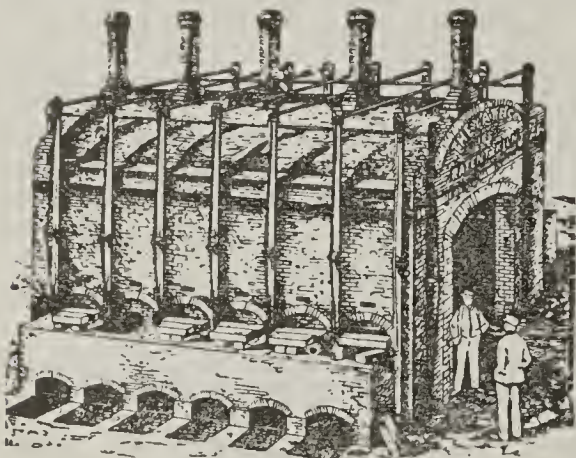
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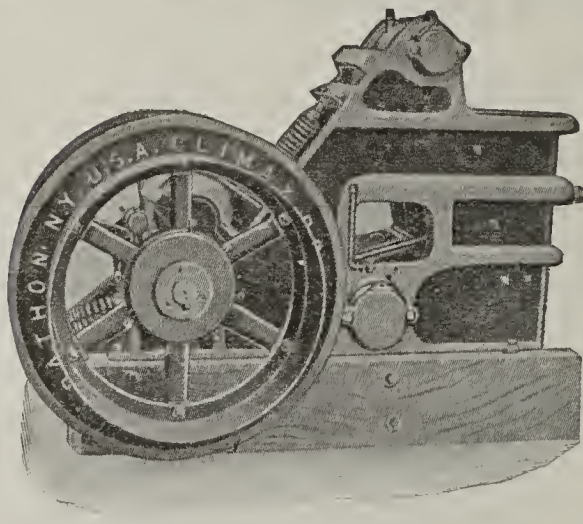
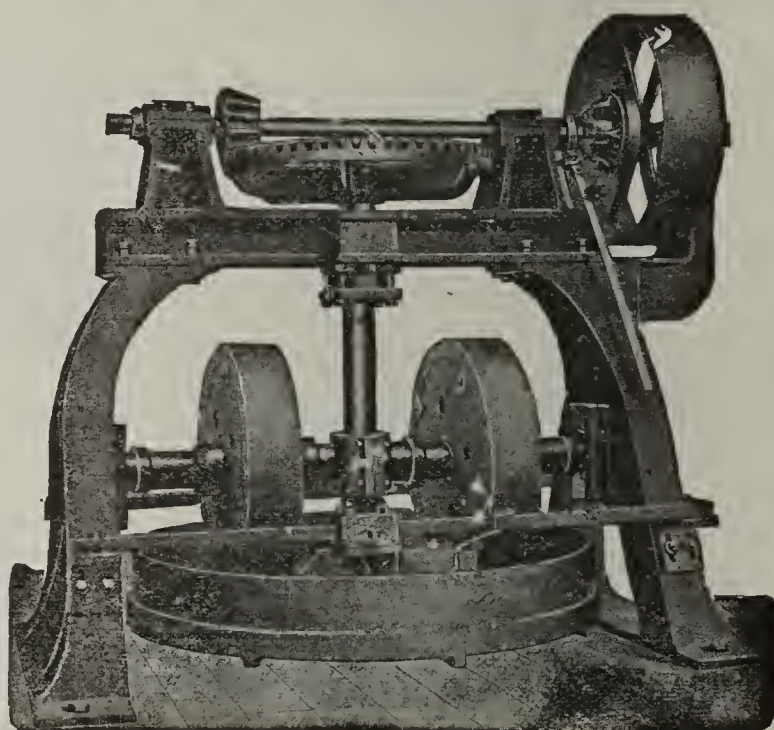
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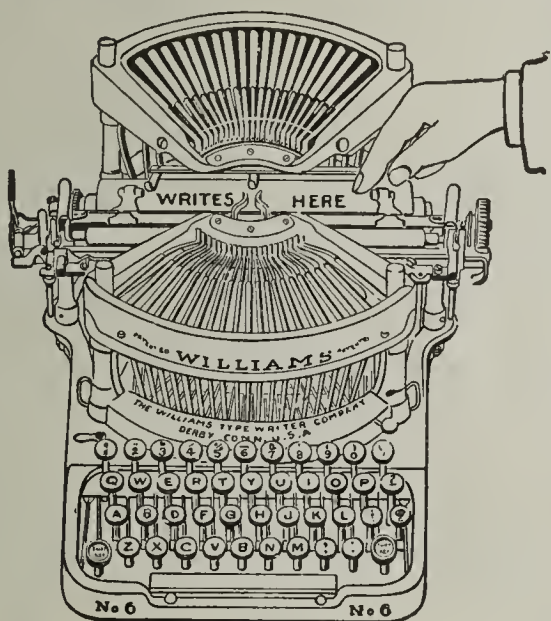


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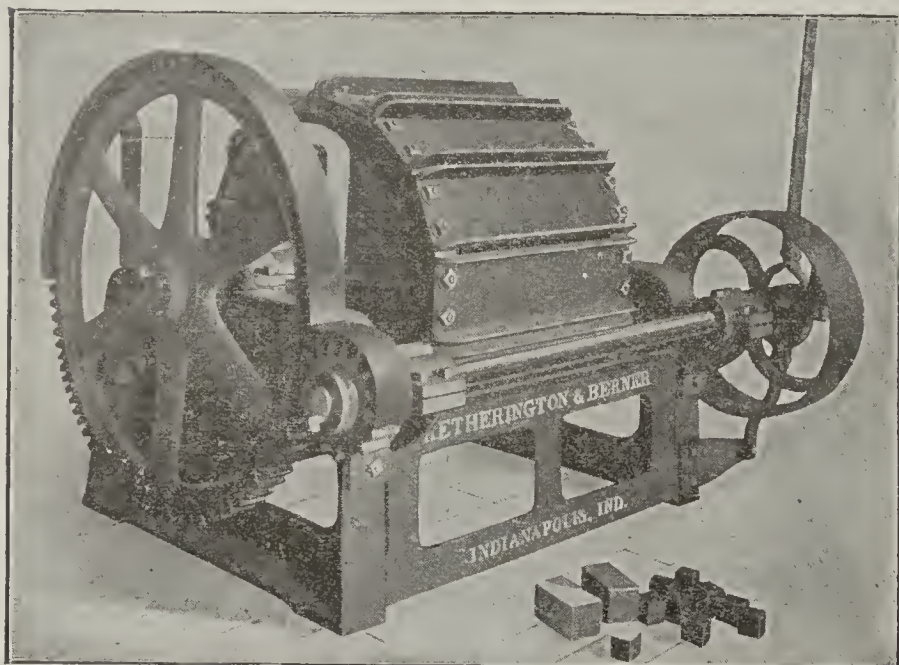
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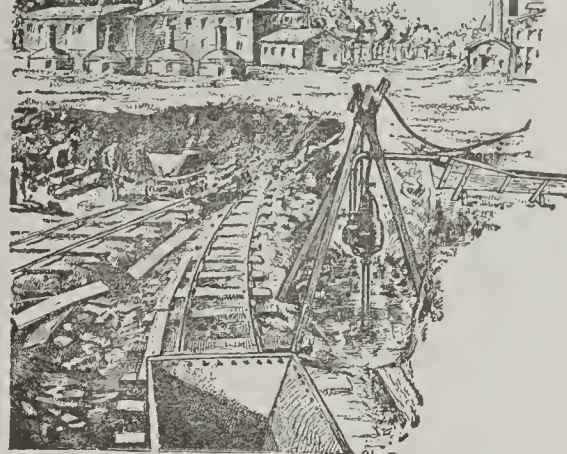
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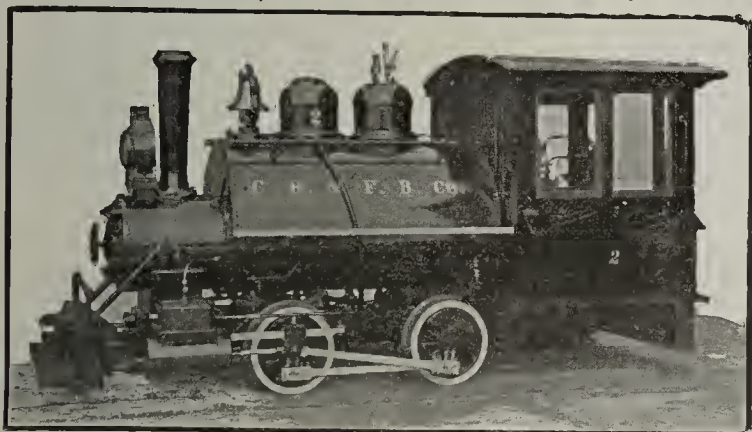
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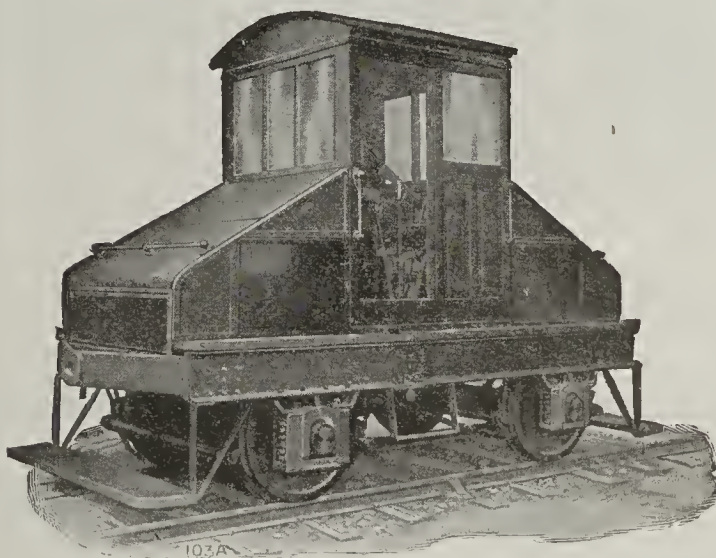
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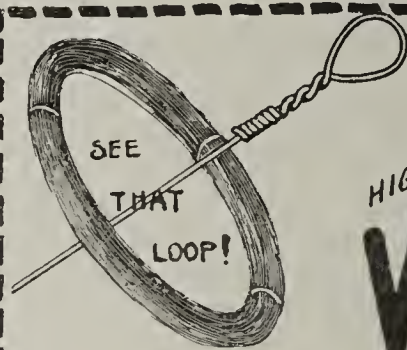
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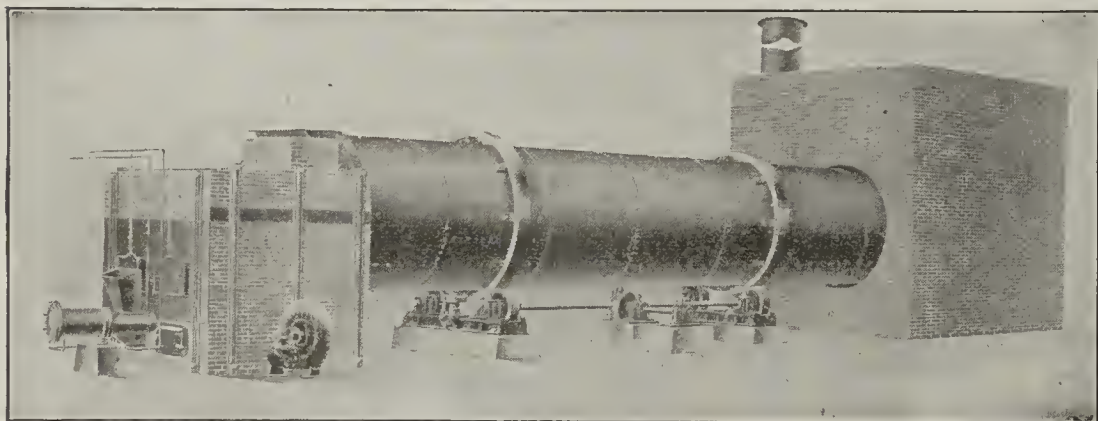


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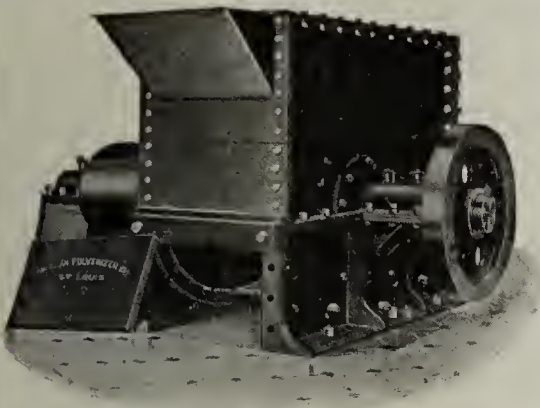
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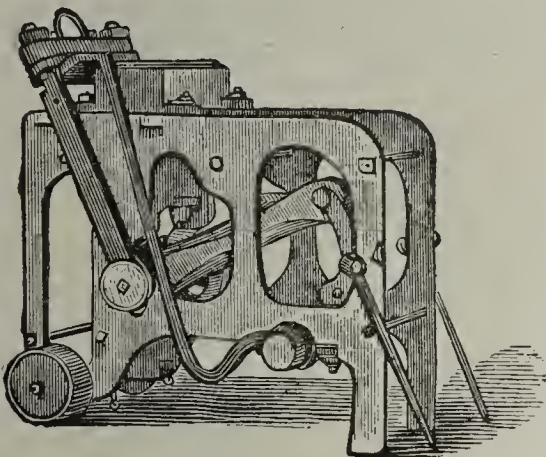
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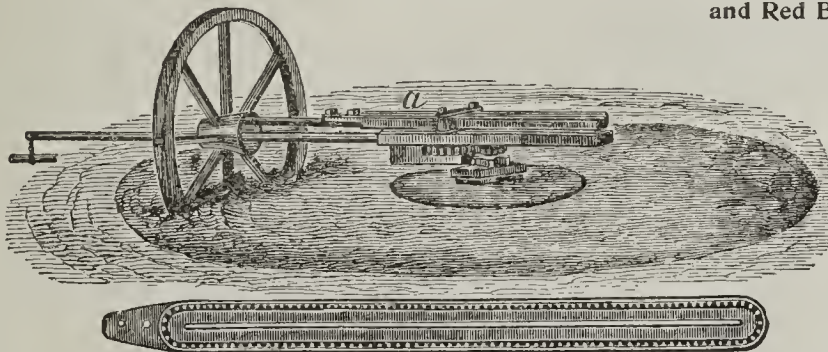


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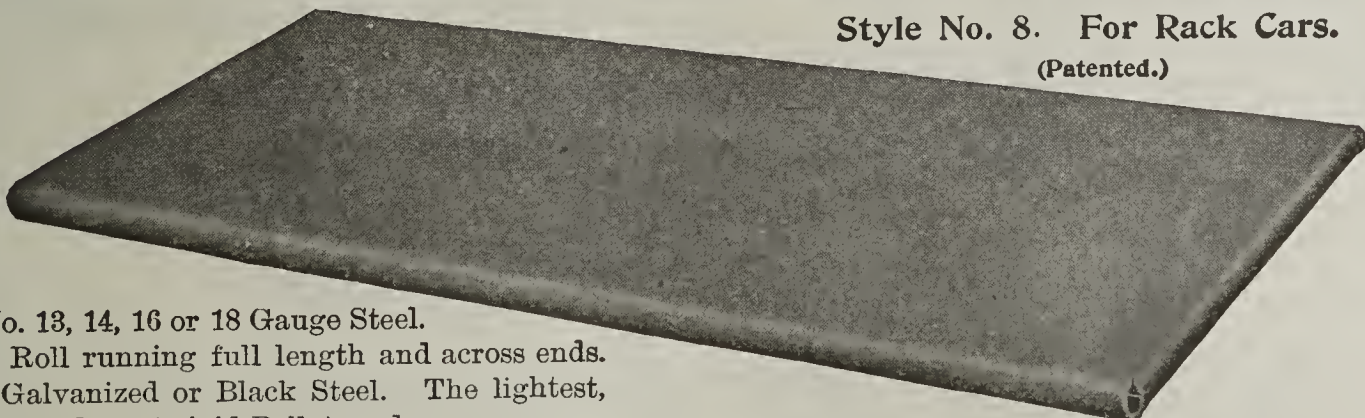
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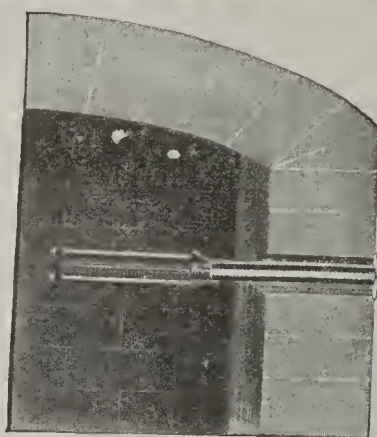
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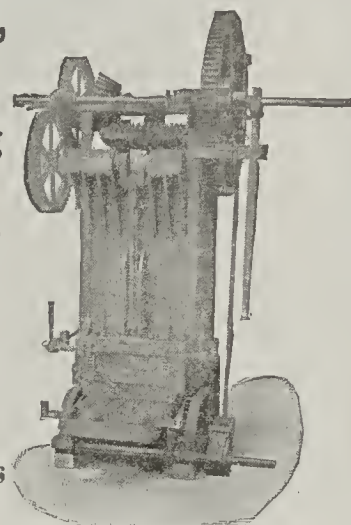


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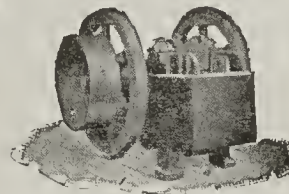


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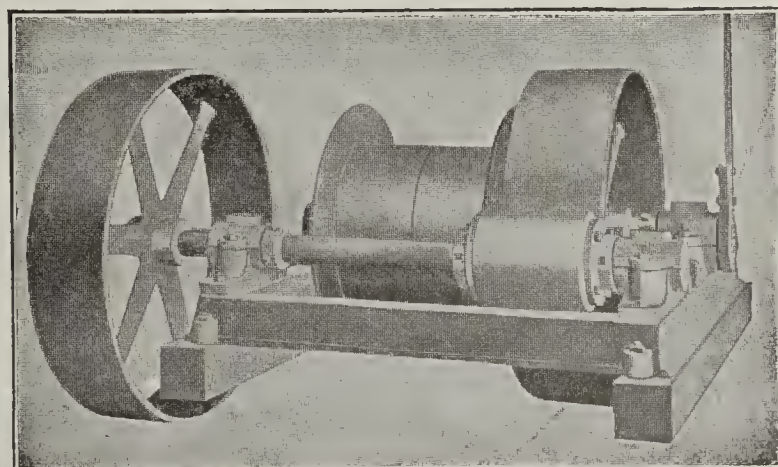
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Regular Brick Barrows.

The best built one made.

Price \$6.50 each.

Stock size of wheel, 20 inches diameter.
(If wanted, 18 inches.)



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.

For catalogue and any further information address

JAMES W. HENSLEY,
Successor to S. K. Fletcher. Indianapolis, Ind.

The Richardson-Lovejoy Engineering Co.

Consulting Engineers and Factory Architects.

We make geological surveys of properties, test the materials, investigate manufacturing propositions and advise regarding products, design plants and superintend construction, modernize old plants for economical operation and devise cost systems.

Expert service for special cases or
by the year at moderate prices.

TECHNICAL BUREAU FOR CLAYWORKERS

Send for Pamphlet
"Ceramic Engineering."

Schultz Bldg., Columbus, Ohio.

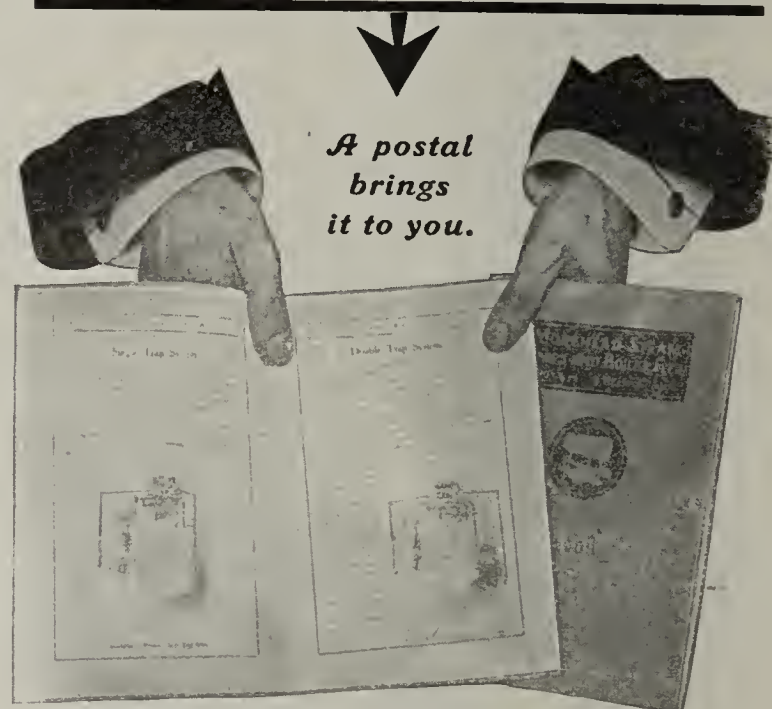
The MOREHEAD "TRAP BOOK"

is a valuable treatise for every clayworker interested in knowing more about the 'better way' of handling condensation in dry kilns and other steam heated machinery, lifting water and feeding boilers.

¶ Every line of the 'Trap Book' is full of useful information—practical stuff for the practical man. It describes and illustrates many new and interesting applications of the steam trap. ¶

¶ Our sole desire in sending the 'Trap Book' free on request is to familiarize you with the many uses of the Morehead Trap to the extent of possibly encouraging you to prove out our claims in your own plant. This you can do without incurring obligations of any kind.

YOURS FOR THE ASKING



MOREHEAD MFG. CO.

Dept. 10.

Detroit, Mich.

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR

\$3.00

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

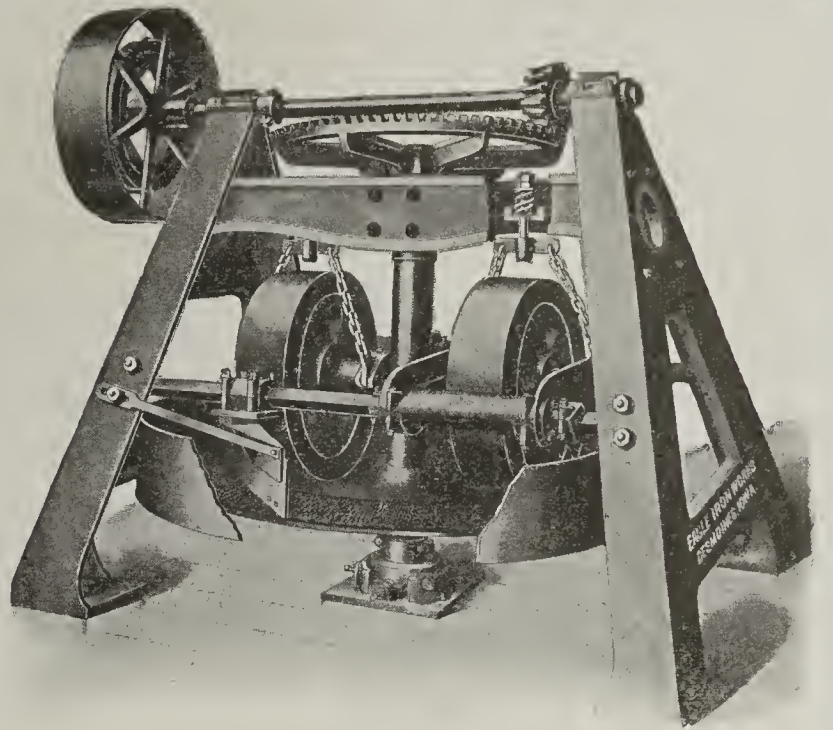
211 North Hudson Street, Indianapolis, Ind.

JUST THINK!

A continuous kiln that will save one-half your fuel and cheaper in construction than round or rectangular down draft kilns. Can be handled to produce the same results as round down draft kilns and use coal, wood, gas or oil for fuel. This kiln is in compartments, and the chambers can be made to hold from Fifteen to Fifty Thousand each of common brick. Is especially suited for burning paving brick and can be built any capacity, to suit any location. Say a plant that wants to make Fifty Thousand brick per day, the kiln will cost Eleven to Thirteen Thousand Dollars. Let me figure on your work.

GEORGE W. OGAN,
108 Logan Ave., DANVILLE, ILL.

Independent and Suspended Mullers the distinguishing feature of our **DRY PANS**



Other valuable features which our catalogue fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

HAIGH'S

IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
Paving and Common Building Brick,
AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
particulars
address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.

MARION STEAM SHOVELS ARE IDEAL FOR
BRICKYARD REQUIREMENTS



Model 35—C. H. Klein Brick Co., Chaska, Minn.

OUR REVOLVING SHOVELS

swinging in a complete circle, will dig and deliver your material in any direction.

For moderate outputs, this is the most economical machine, as it can be operated by one man.

OUR STANDARD SHOVELS

are also in great favor—the larger models satisfactorily meeting requirements where a high cut is necessary.

The material and workmanship entering into the construction of our Excavating Machinery is the best the market affords, therefore it is **EFFICIENT, RELIABLE AND DURABLE.**

We also build

ELEVATOR AND DIPPER DREDGES—DRAG-LINE EXCAVATORS—BALLAST UNLOADERS.

THE MARION STEAM SHOVEL COMPANY, Dept. 3, MARION, OHIO
Chicago: 1442-3 Monadnock Block. New York: 50 Church St. San Francisco: 718 Monadnock Bldg.

Give Your Superintendent a
Christmas Present Worth While.

Instill more interest and enthusiasm in his work by presenting him with one of our extraordinary clubbing offers. **THE CLAY-WORKER** alone will create that interest and enthusiasm so essential to good work. Besides our helpful medium you are giving him other valuable magazines for his household. Read these offers carefully:

CLAY-WORKER.....	\$2.00	Our Price
Success.....	1.00	
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CLAY-WORKER.....	\$2.00	
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CLAY-WORKER.....	\$2.00	Our Price
Good Roads.....	1.00	
Everybody's.....	1.50	
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CLAY-WORKER.....	\$2.00	
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		\$4.25

See Other Combination Offers on pages 616 and 617.

THE THEW SHOVEL FOR BRICKYARDS

Valuable Information for Brickmakers.

GRAND FORKS, N. D., October 15, 1910.

Cost of Operating No. 0 Thew Steam Shovel for 78 Days.

Wages of engineer for	84 days at \$3.45 per day	\$289.80
Wages of fireman for	79 days at 2.00 per day	158.00
Wages of laborer for	79 days at 2.00 per day	158.00
Oil consumed for	78 days at .06 per day	4.68
Waste consumed for	78 days at .01½ per day	1.17
Packing consumed for	78 days at .06 per day	4.68
Repairs for	78 days at .27 3-10 per day	21.35
Steam coal, 50,150 lbs. } at \$5.65 per ton,	78 days at 1.81 (643 lbs. per day)	141.67
Water, 49,100 gals. at 17c. per M	.10 per day	7.80
Cost per day	\$9.76 8-10	
Cost for 78 days		\$787.15

Average number of brick per day, 144 M.

Cost per M for putting clay on cars, .07c.

Average number yards clay put on cars per day, 320.

Cost per yard, 3c.

Engineer's time allowed from the day he started to get the shovel ready until he put it away for the winter.

Fireman's time allowed from the day shovel started to dig clay until close of season.

Laborer on ground was allowed time same as fireman.

If we were only making 40 M to 60 M brick per day, the fireman could be dispensed with, but the shovel supplies clay for three machines averaging 48 M brick per day for each machine, and the clay bank being only four to five feet deep it requires the three men, but not hard work for any of them.

Our coal is weighed every day by the steam shovel fireman and the daily record is on file in our office. The water is measured by an individual meter so that this item is absolutely correct.

You will note that the cost per yard is about 3c. against 4.26c. for last year. The difference in cost this year is due to the shovel digging clay for three machines instead of two last year, so that we practically supplied one machine for nothing.

The cost of putting clay on the cars at the yard where we have not got a shovel was nine cents per yard. We are always glad to recommend your shovel to any one who inquires about it, and we consider it one of the best investments we have ever made.

THE RED RIVER VALLEY BRICK CORP.

By Louis Campbell.

The above result was secured under unfavorable conditions as to cost of fuel and labor.

Are you interested? Write for information.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

Louisville & Nashville R. R.

The attractive way to Louisville
for the

Nat'l Brick Manufacturers' Association

February 6-11, 1911

Five trains daily from Cincinnati
Two trains daily from St. Louis

Two trains daily from
New Orleans, Memphis, Mobile,
Birmingham, Knoxville, Atlanta

Before completing arrangements for your trip
consult nearest Louisville & Nashville agent or

Address

W. A. Russell, General Passenger Agent
Louisville, Ky.

Announcement

THE magnificent new factories of The C. W. Raymond Company are now about completed and ready for occupancy.

¶ The buildings are most interesting examples of the possibilities of burnt clay products in factory construction, and are the strongest advertisement for the clayworkers, as the buildings exemplify the most modern ideas from every standpoint.

¶ The general plan at once suggests economy of operation, which is a paramount question in plant design. The steel construction not only gives strength and life to the buildings but, with the brick walls and tile roof, gives us that added touch of beauty and comfort, which makes a satisfied force of workmen who appreciate cleanliness in their work as well as home, and which but means a better man doing more honest workmanship, all of which will be reflected in the improved product. We are furthermore building an immense foundry whereby we can take care of our continually increasing work, and furthering the high-grade construction of our machinery.

¶ While it would be pleasant for us to occupy offices rivalling in splendor the magnificence of the modern skyscrapers, we rather have preferred to put our energy into the perfecting of our product, which is of more interest to the buyer, than to expend great quantities of money for our personal comfort. While our offices will be the most convenient and comfortable, they will be modest throughout. Our office force has been reorganized, putting fresh energy and ambition into each member and added new life to the entire institution.

¶ It is with this that we greet you before New Years rolls around, spending every energy toward the accomplishment of our desired end—that of the most perfect clayworking machinery that can be made.

THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

Berg Dry Press

Added to the magnificent line of Raymond machinery, is the well-tried Berg Dry Press, which for years has been recognized as the standard by which all dry press machinery has been built.

Its Salient Points Are

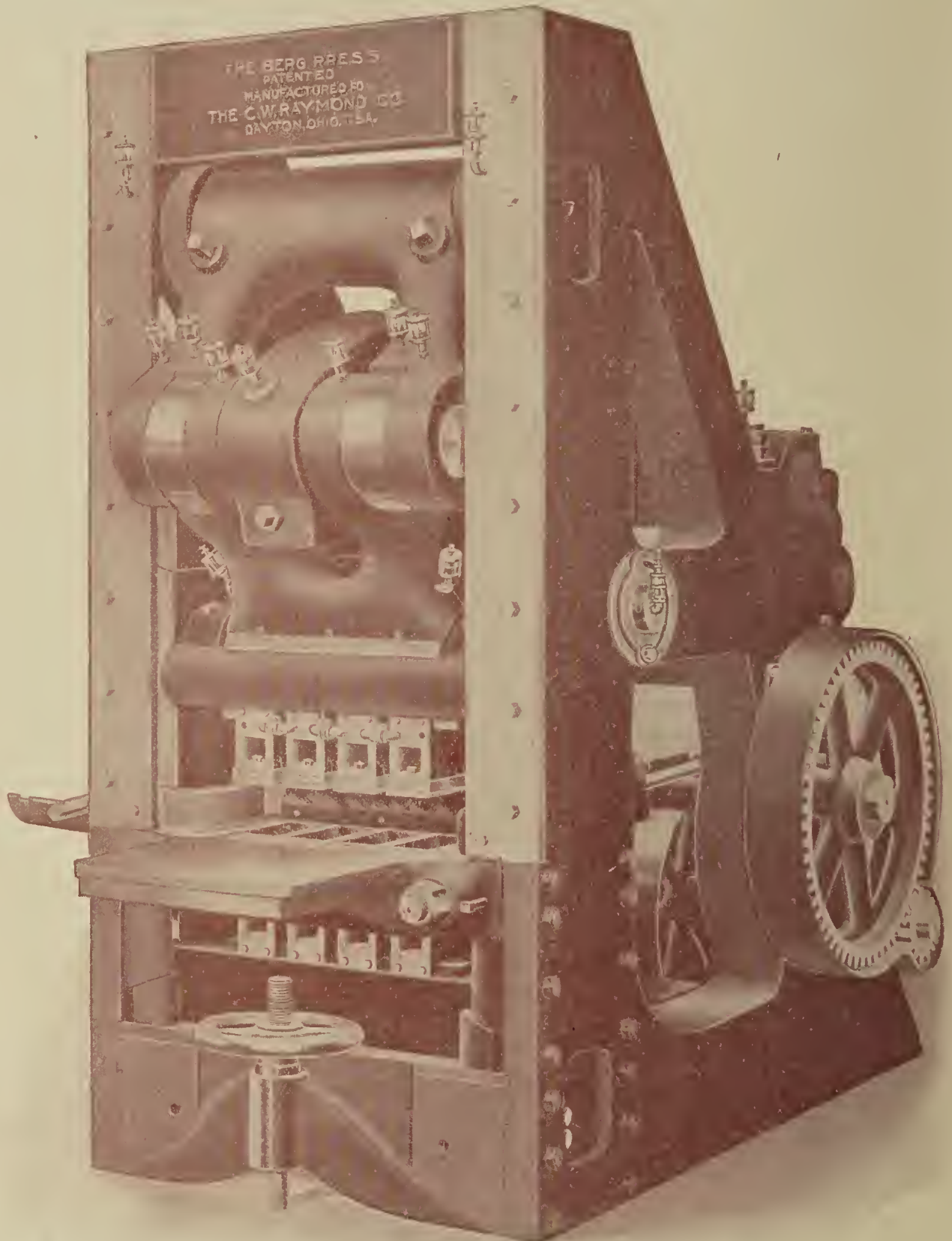
All presses equipped with cut gearing.

Each machine shipped in one piece.

It gives the brick three distinct pressures.

Its compactness insures strength.

All of the Berg working parts are above the clay line. Exhibit No. 2111 enters into detail of its construction.



THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

Dayton, Ohio, U. S. A.

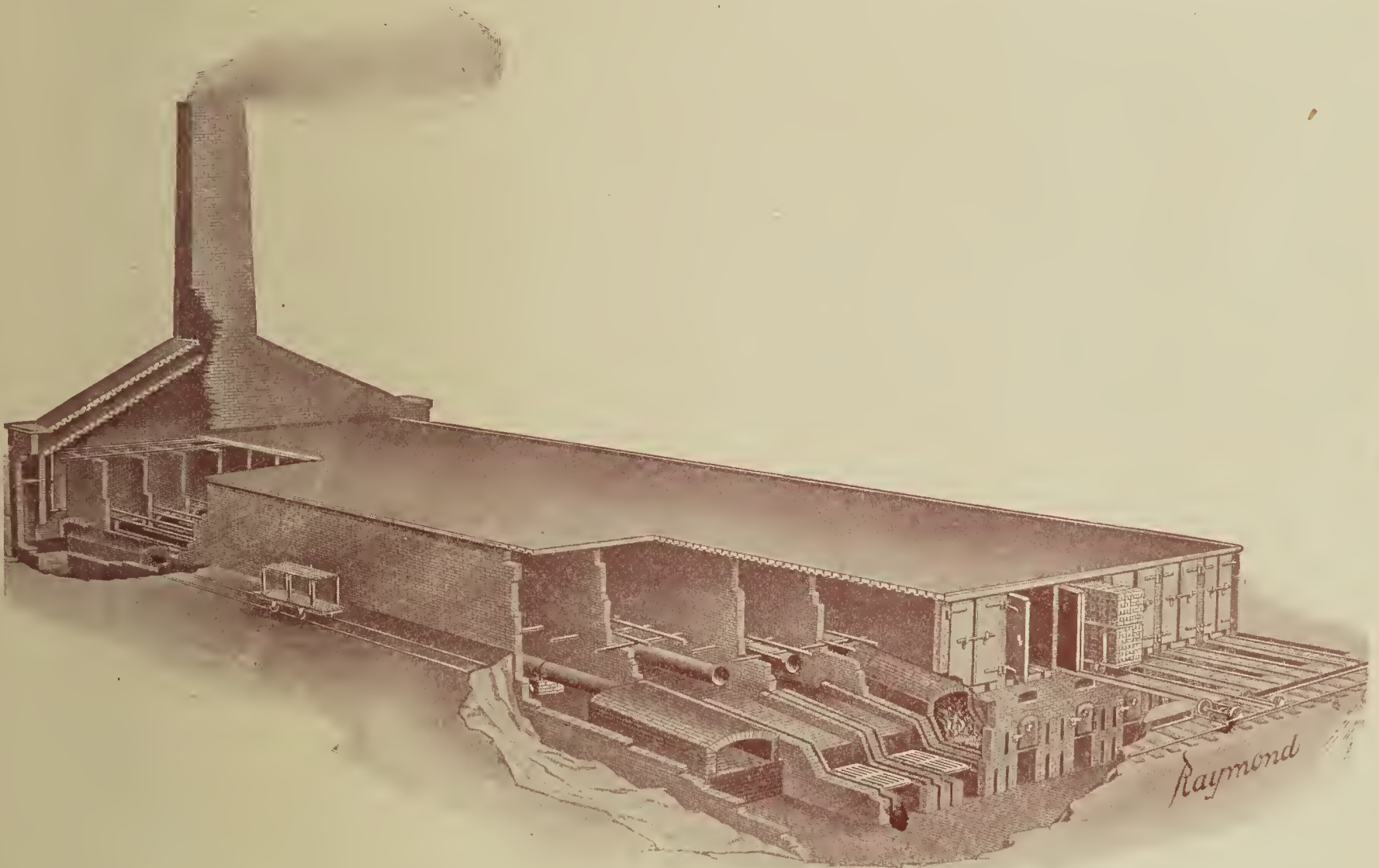
The Raymond Radiated Heat Dryer

The Raymond Systems of drying Clay Products represent the highest ideal and approach perfection as near as human effort can do.

Their practical use has thoroughly demonstrated that the careful handling of the tenderest materials is accomplished by the draft and furnace control, assisted by uniform radiation and evenly tempered air.

The results obtained are the same in the drying of roofing tile, hollow ware, face brick, paving brick, drainage tile or any other products of plastic clay.

Write for exhibit sheets covering our drying systems.

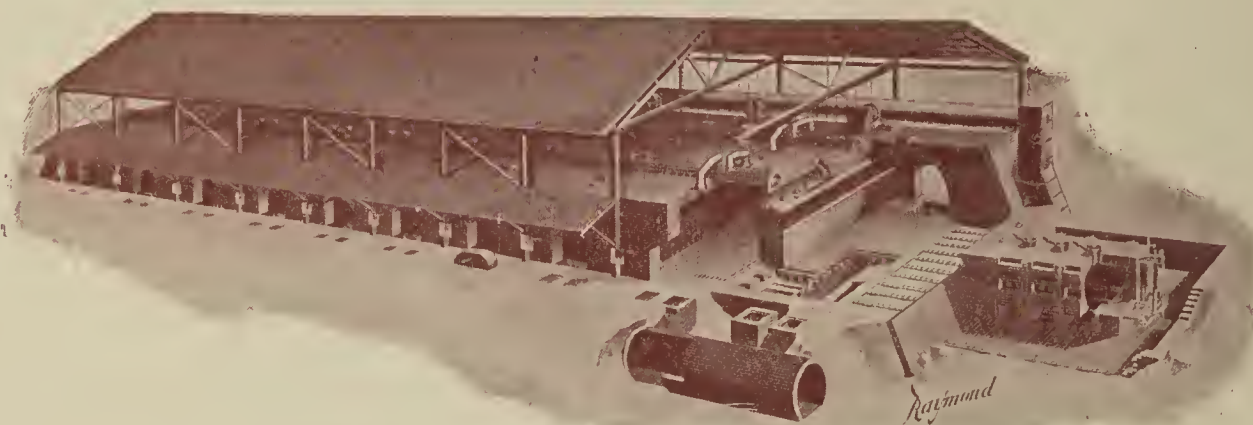


THE C. W. RAYMOND CO.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

The Youngren Continuous Kiln Producer Gas Fired



MAGNIFICENT results are being daily obtained from the many installations of the Youngren Kiln. Not only is its economy of fuel the paramount result, but the uniformity of the burn as well as minimum kiln losses tend to greatly increase its efficiency under all conditions.

It is not only burning all of the principal products made from plastic clays, but successfully handling materials heretofore thought unfit for clay products' use.

*Catalog covering the Youngren Kiln will be mailed
on receipt of your request.*

THE C. W. RAYMOND CO.

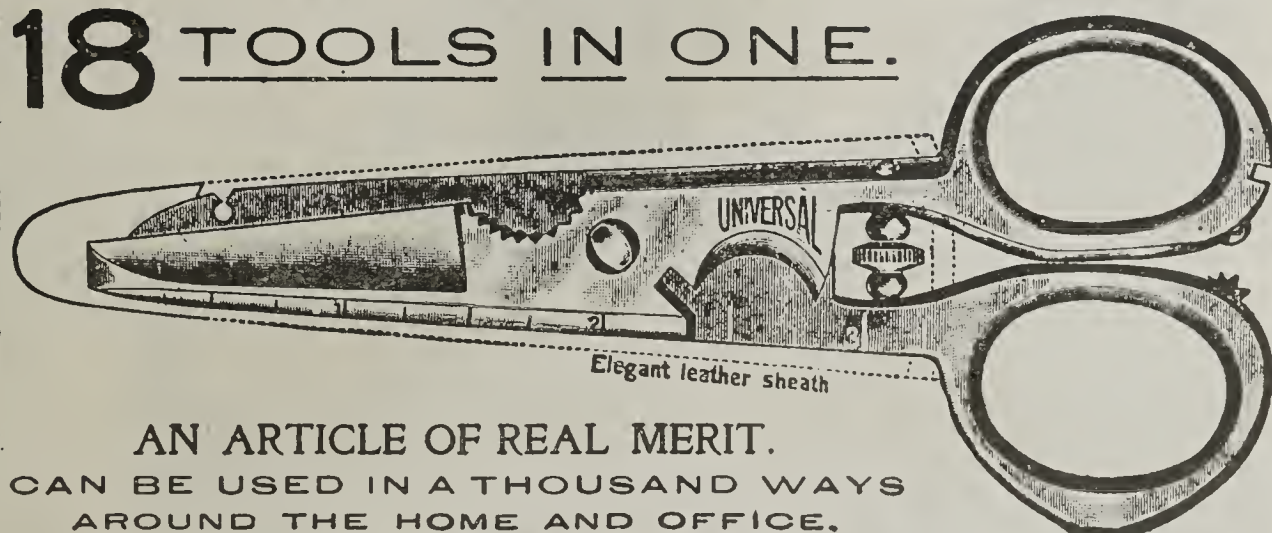
*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

The C.-W. Vest Pocket Kit

The
Handiest
Combination
Ever
Invented

18 TOOLS IN ONE.



AN ARTICLE OF REAL MERIT.
CAN BE USED IN A THOUSAND WAYS
AROUND THE HOME AND OFFICE.

This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

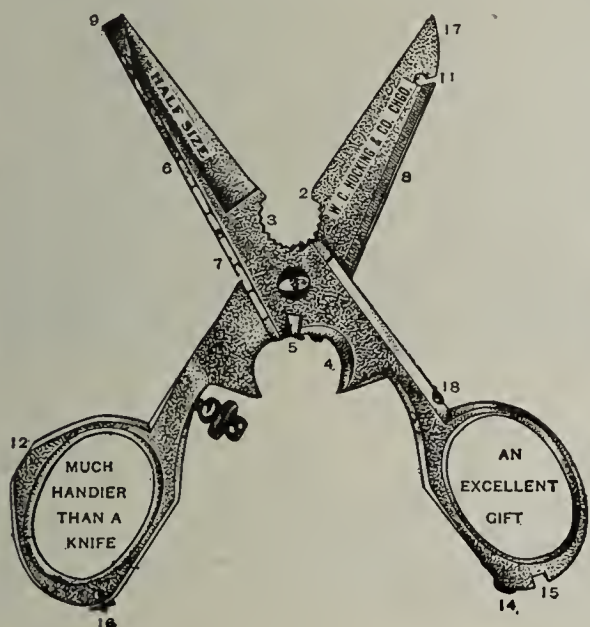
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every new subscription to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

C.-W. Vest Pocket alone, \$1.00.



T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE C.-W. VEST POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued.

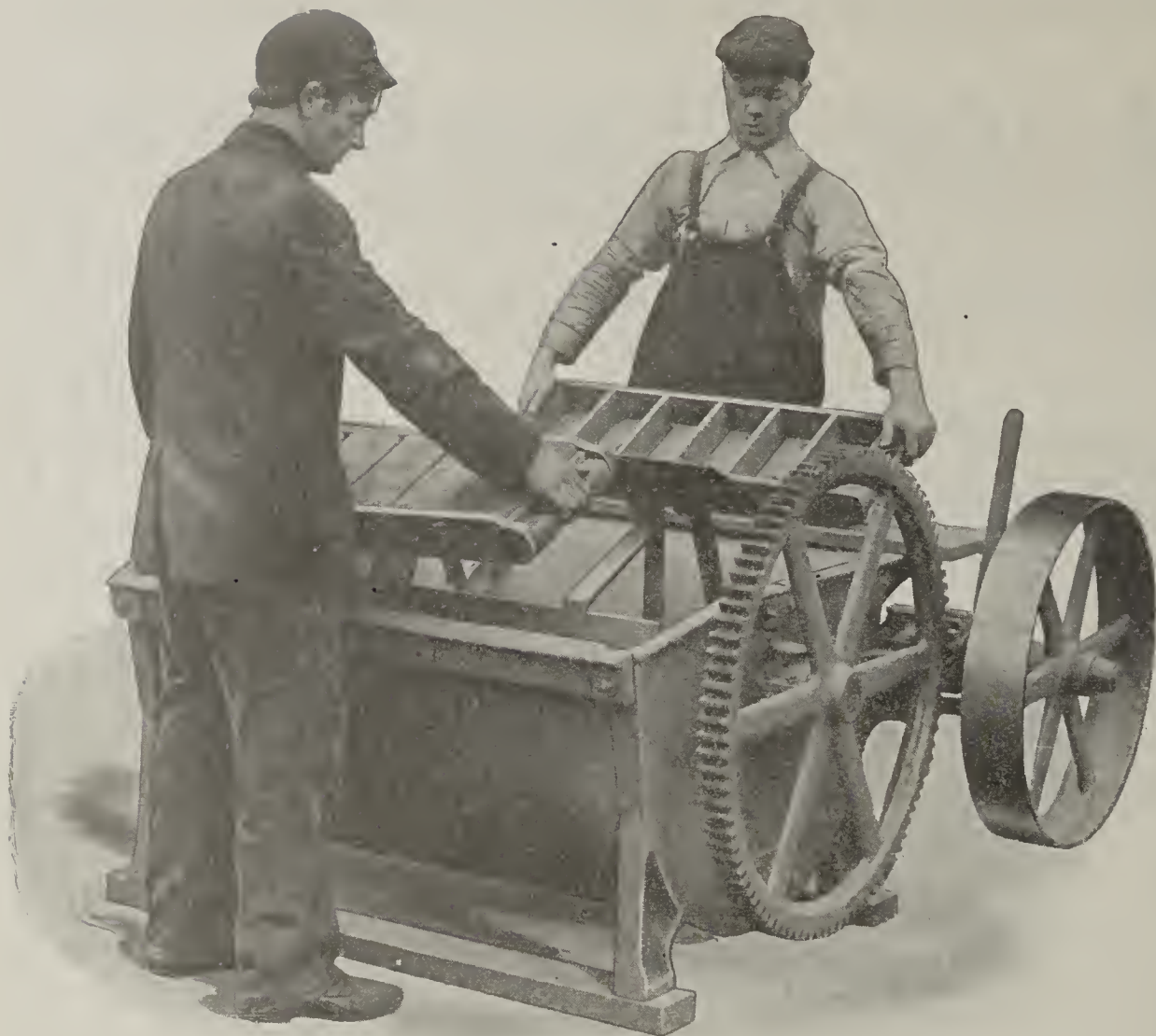
beginning with the.....issue. Enclosed find \$

Name

Postoffice

Street and Number

County.....State.....



The Wellington

Mold Sanding Machine.

Absolutely simple.
All iron and steel.
No chains or belts.
Positive in its action.
Clogging impossible.
Filled without stopping.
Impossible to waste sand.
No light or complicated parts.
Runs at any speed.
Takes any size mold without adjustment.

Equipped with reliable clutch pulley.
Will set on either right or left hand side of brick machine.

Sands the mold on the bottom as well as inside; also the bottoms at the side of the vents, which produces less drags on the brick than any sander on the market.

Will ship to any brick manufacturer on 30 days' trial, to be returned at our expense if not entirely satisfactory. It will drop dollars every week from your operating expenses.

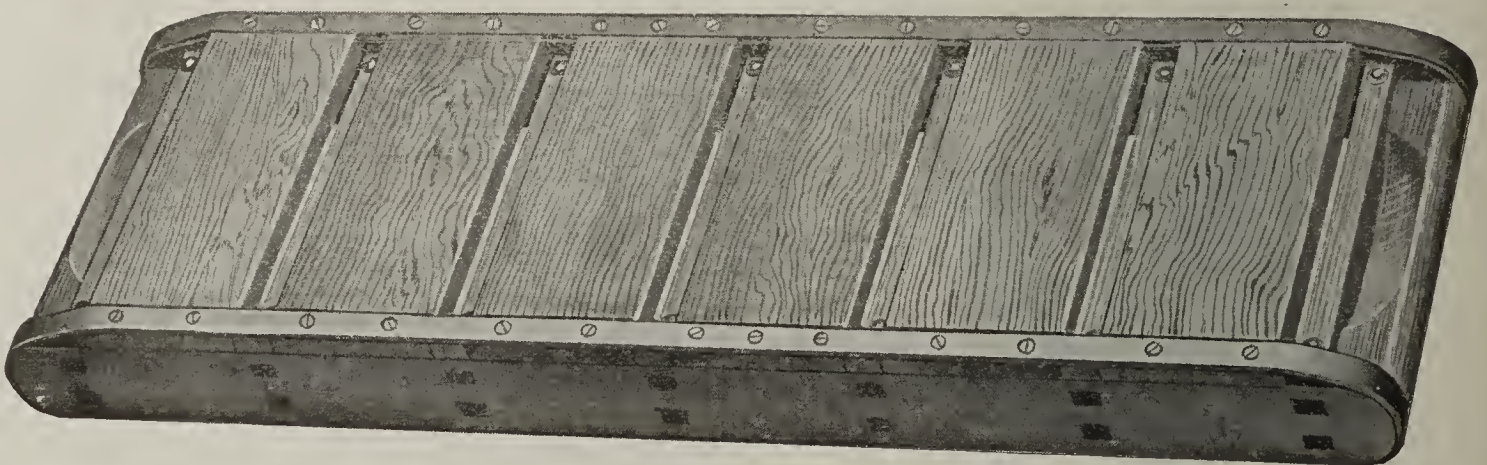
Write for prices on this machine now.

The Wellington Molds.

NOTE—

- The number of screws on side irons;
- The rivets in each end of partition irons;
- Panels with letters, if desired, all carved in the bottom of mold;
- Tenons and dove-tails, locking partitions and irons securely;
- Blocks between bottoms to overcome splitting.

Bound with No. 12 or No. 10 Steel, as desired.
GUARANTEED in material and workmanship.



THE WELLINGTON MACHINE CO.

WELLINGTON, OHIO.

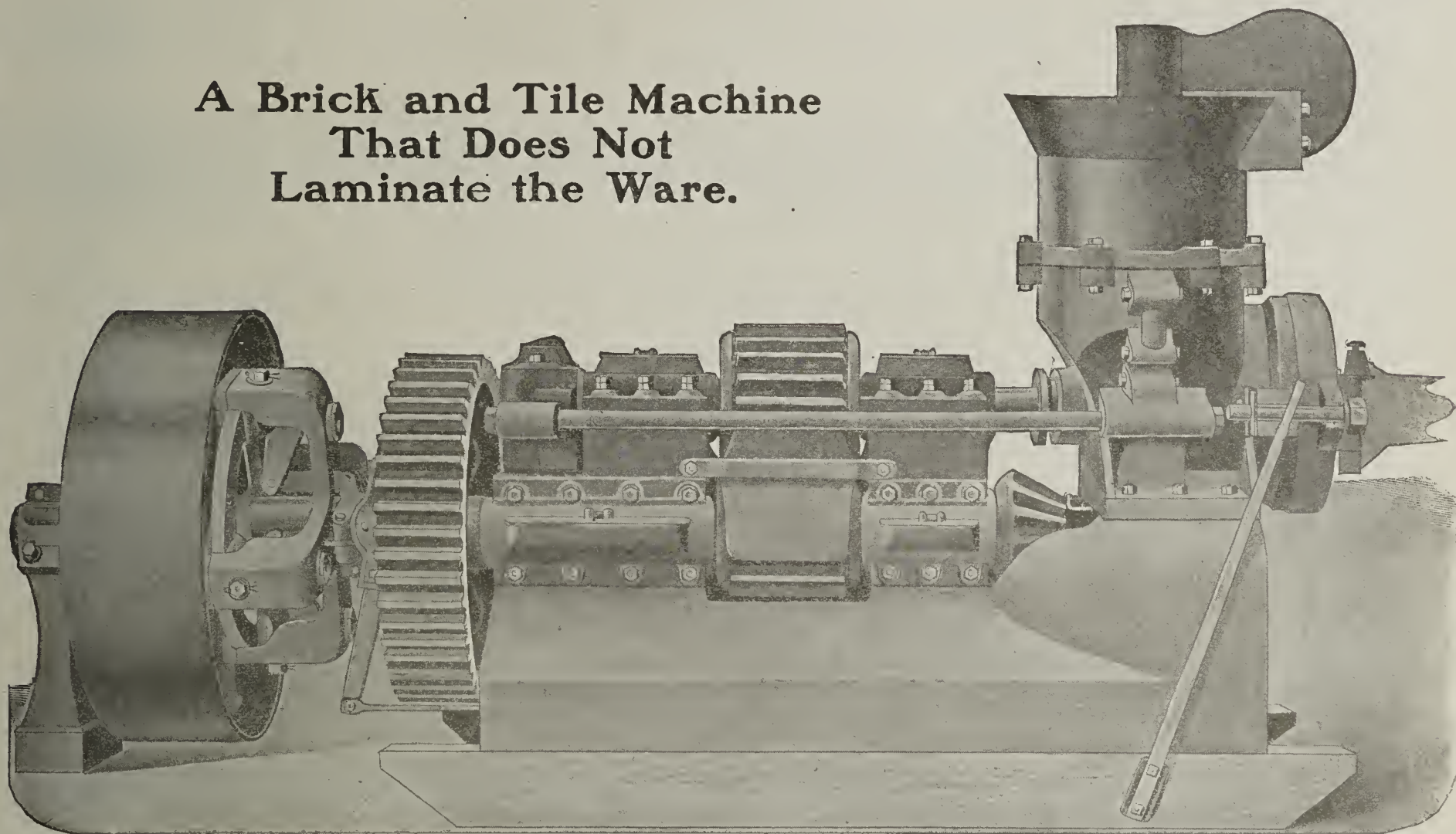
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TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

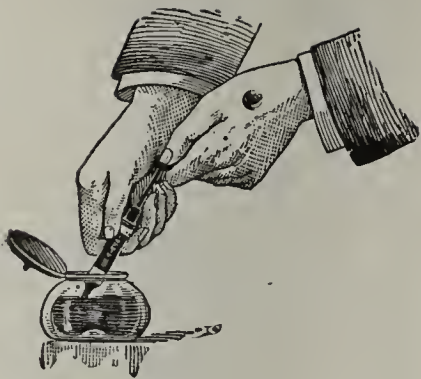
We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

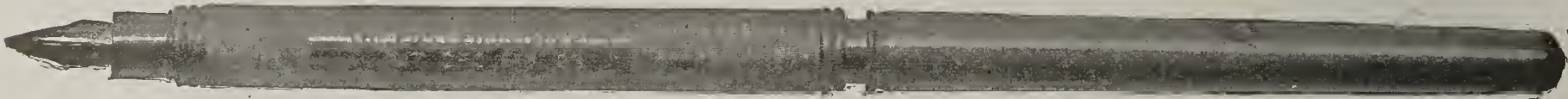
THE WALLACE MFG. CO.,
FRANKFORT, IND.

REMARKABLE OFFER

We will send this famous Gold Pointed pen, post paid, and THE CLAY-WORKER for one year, to any address in the United States and Canada for **\$3.00**



“POST” SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen. Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

GEN. LEW. WALLACE: The author of “Ben Hur” wrote, “I have tried every kind in the market and unhesitatingly give the preference to the “Post.”

JUDGE LUTHER L. MILLS, CHICAGO: The “Post” Fountain Pen is the Best I have ever used; simple, reliable, durable.

DR. JOSIAH STRONG: The great author of “Our Country” says: “I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the “Post” leaves nothing to be desired.

THE CLAY-WORKER, INDIANAPOLIS,
INDIANA.

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IT
NOW

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Name.....

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County..... State.....

SAND MOULD BRICKMAKING PLANTS OUR SPECIALTY.

**HORIZONTAL BRICK MACHINES,
DISINTEGRATORS,
MOULD SANDERS,
GRANULATORS OR FEEDERS,
Pug Mills, Winding Drums, Clay Cars, Brick
Conveyors and Dryers.**

**All Machinery made of Best Material by
Best Workmen.**

WE GUARANTEE

To work the clay direct from the bank, to handle automatically the brick made, either to dryer or racks.

All machinery has large shafts, running in long bearings. Where necessary, Steel Gears are used, thus making a plant that will make the VERY BEST BRICK every day in the year.

Let us redesign your plant for next year. We will save you money and at the same time improve quality of brick made.

C. & A. POTTS & CO., Indianapolis, Ind.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary
knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay
plant, a bolt tightened at the right time may save a seri-
ous breakdown, causing loss of time and money. How
often would this be avoided if the superintendent or fore-
man had the right tool within reach when wanted. How
often are these little, but very important details neglec-
ted because the necessary tool is not convenient, or has
been mislaid, and how much time is lost in consequence.
Avoid all this by carrying in your pocket the C. W.
Pocket Kit. You will find use for it a hundred times a
day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity,
will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not
filled with knickknacks or flimsy makeshifts as is the case with or-
dinary combination knives. Instead it is a practical, efficient
combination. Its workmanship is first-class. All rivets are coun-
tersunk. The temper is drawn in Screw Driver, and Point of Awl
to prevent either from breaking. It is no more clumsy or awkward
to carry in the pocket than an ordinary three-bladed knife. The
blades are made of the best 85 carbon cutlers steel, and tempered to
withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not
steel castings), and tempered especially to do the work required of
them, and give entire satisfaction in handling and cutting fence
wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making
various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN
TURNED TO THE LEFT; especially adapted for use in LACING BELTS,
untieing knots, etc. Besides being a perfect leather punch and
swedging awl, this tool is a perfect screw bit, making a tapering
hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are per-
fect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle
will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT
and enter my subscription for THE CLAY-WORKER to be sent to
the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

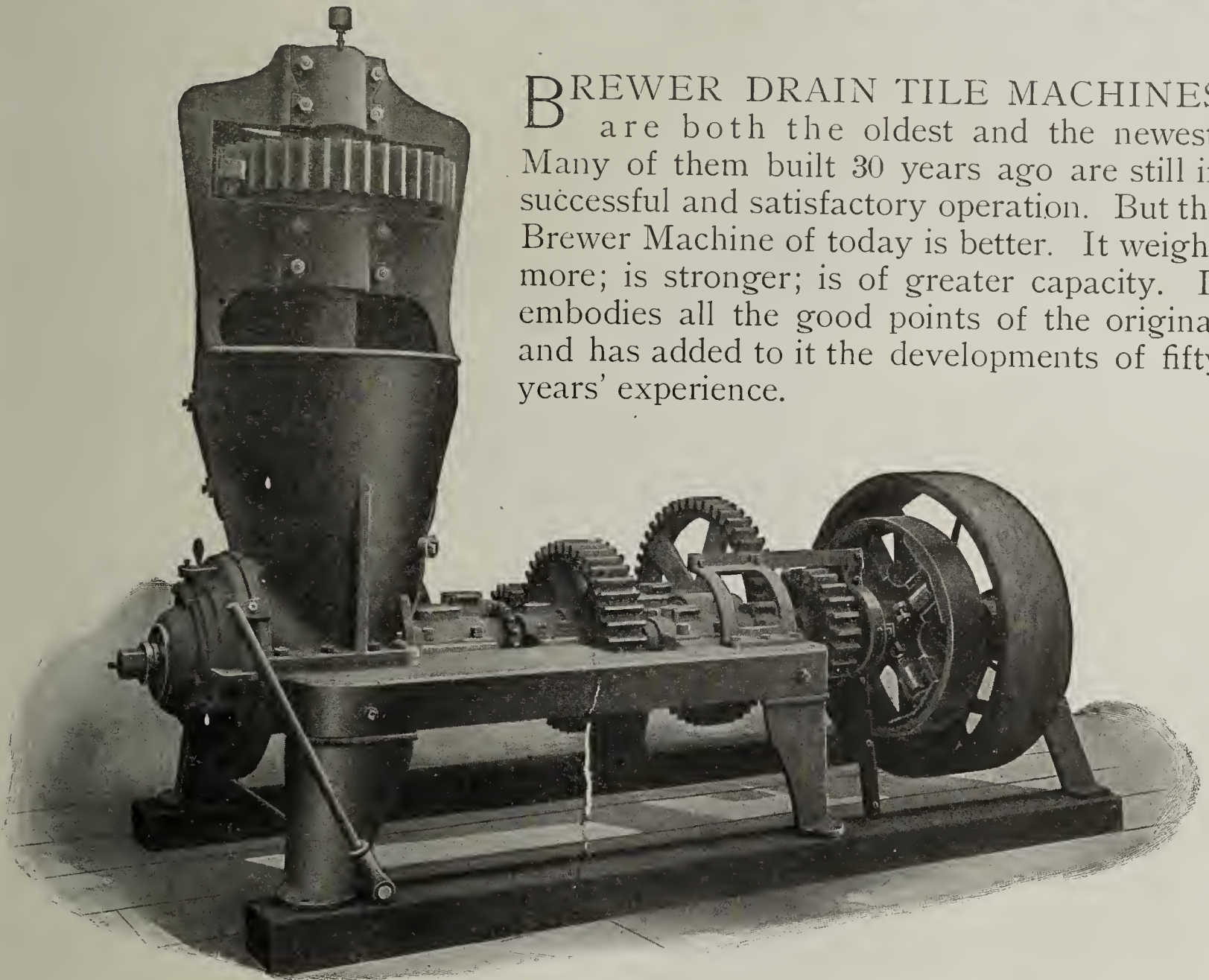
Postoffice

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DRAIN TILE MACHINES



BREWER DRAIN TILE MACHINES are both the oldest and the newest. Many of them built 30 years ago are still in successful and satisfactory operation. But the Brewer Machine of today is better. It weighs more; is stronger; is of greater capacity. It embodies all the good points of the original and has added to it the developments of fifty years' experience.

We Build Three Sizes

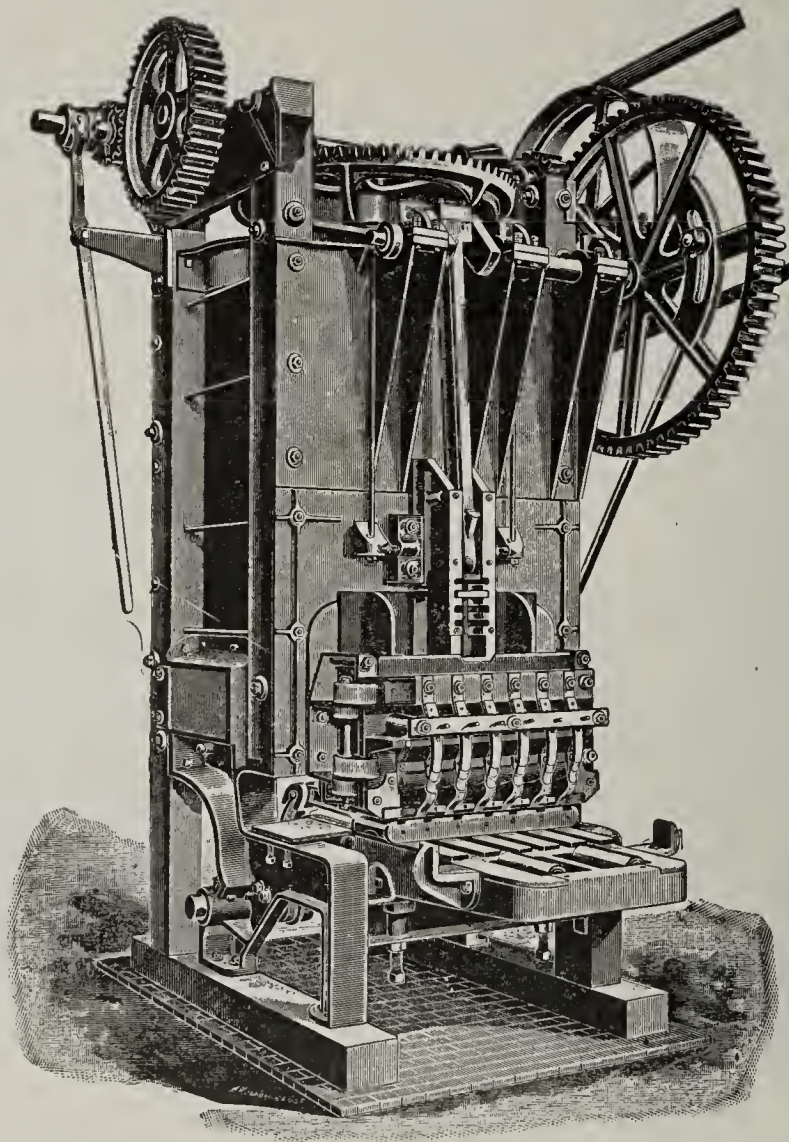
ranging in capacity from 1,000 4-inch tile per hour up to all that can possibly be handled by any present day method. They range in weight from 5,500 to 10,400 pounds. The upright portion is cast in one piece and machined to the frame. The frame is cast in one piece. The knives are forged from hard high-carbon steel. The augers and casings are of white iron. The cores of the tile dies are held without bridge or bracket or anything which parts the clay as it is being formed into shape. They make good tile where other machines fail.

Our catalog explains all about them and gives detailed specifications.

H. BREWER & COMPANY, Tecumseh, Mich.

EARNING CAPACITY.

The thing which gives value to any machine is its earning capacity. The earning capacity of brick machinery depends as much on strength and thorough construction as anything. Most brickmakers have learned this in the expensive School of Experience. When a machine is broken down its earning capacity and its value is gone. Continued results, therefore, determine the economic value of a machine, rather than first cost. On this basis "New Haven" Machines have proven to be the least expensive on the market.



"New Haven" Vertical Brick Machine.

Because of their simplicity, unusual strength, and excellent construction, "New Haven" Vertical Brick Machines are seldom out of repair, and hence earn more and are much more valuable to their owners than the light weight affairs that break so often. They do better work than is possible with less powerful machines. It will pay any prospective buyer to think seriously about this matter of earning capacity, and look into the merits of the "New Haven" Machine from that point of view.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of Vitrified Paving Brick.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking. Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport,

Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

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A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen, and enable them to do difficult work in the best manner.

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Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

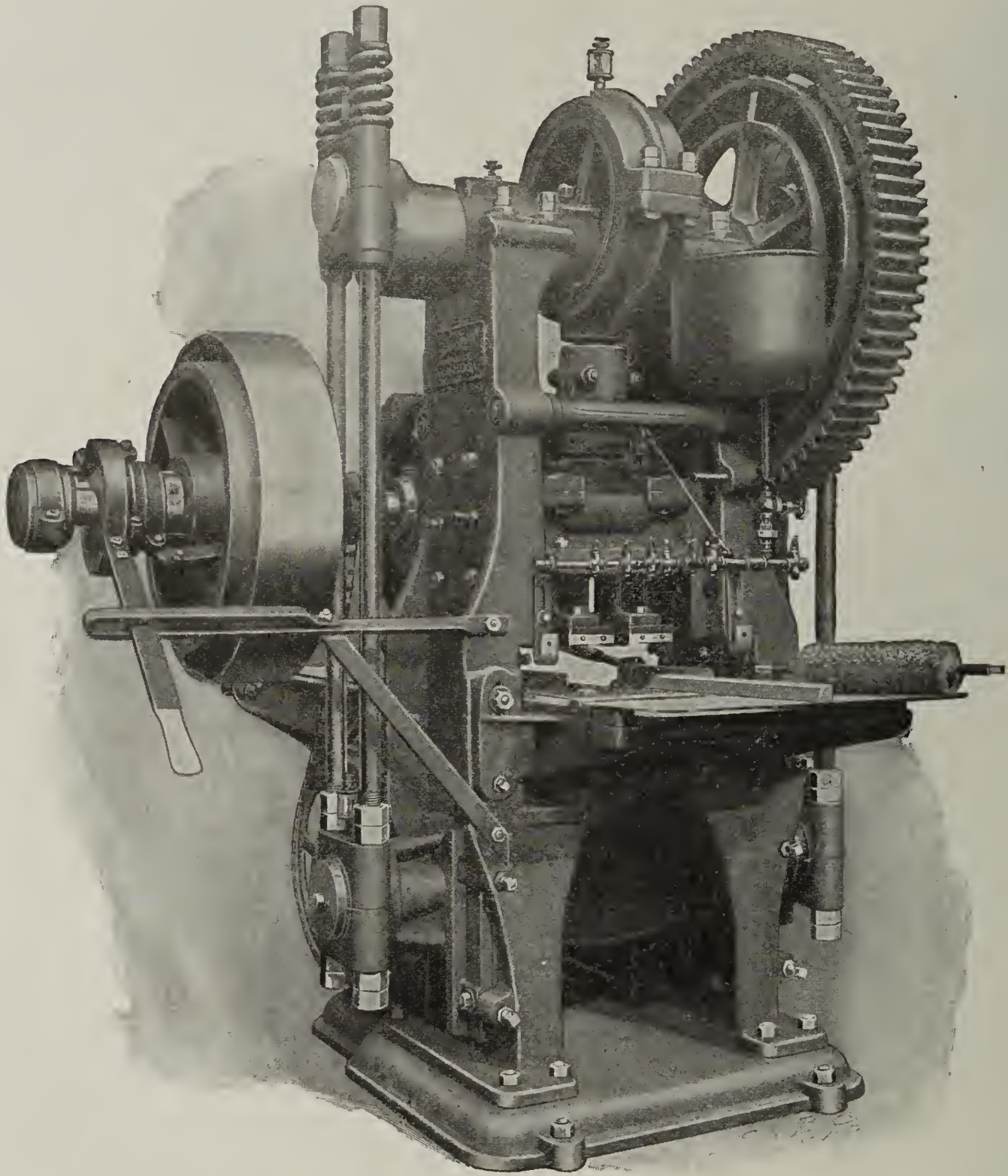
Tile Underdrainage, by J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

BONNOT MACHINERY

Auger Brick Machines and Combined Machines in capacities from 20,000 to 125,000 daily output. Automatic Cutting Tables, Pug Mills, Dry Pans, Screens, etc. Everything in Brickyard Equipment.



Canton Repress—The Recognized Standard.

Catalog on Application.

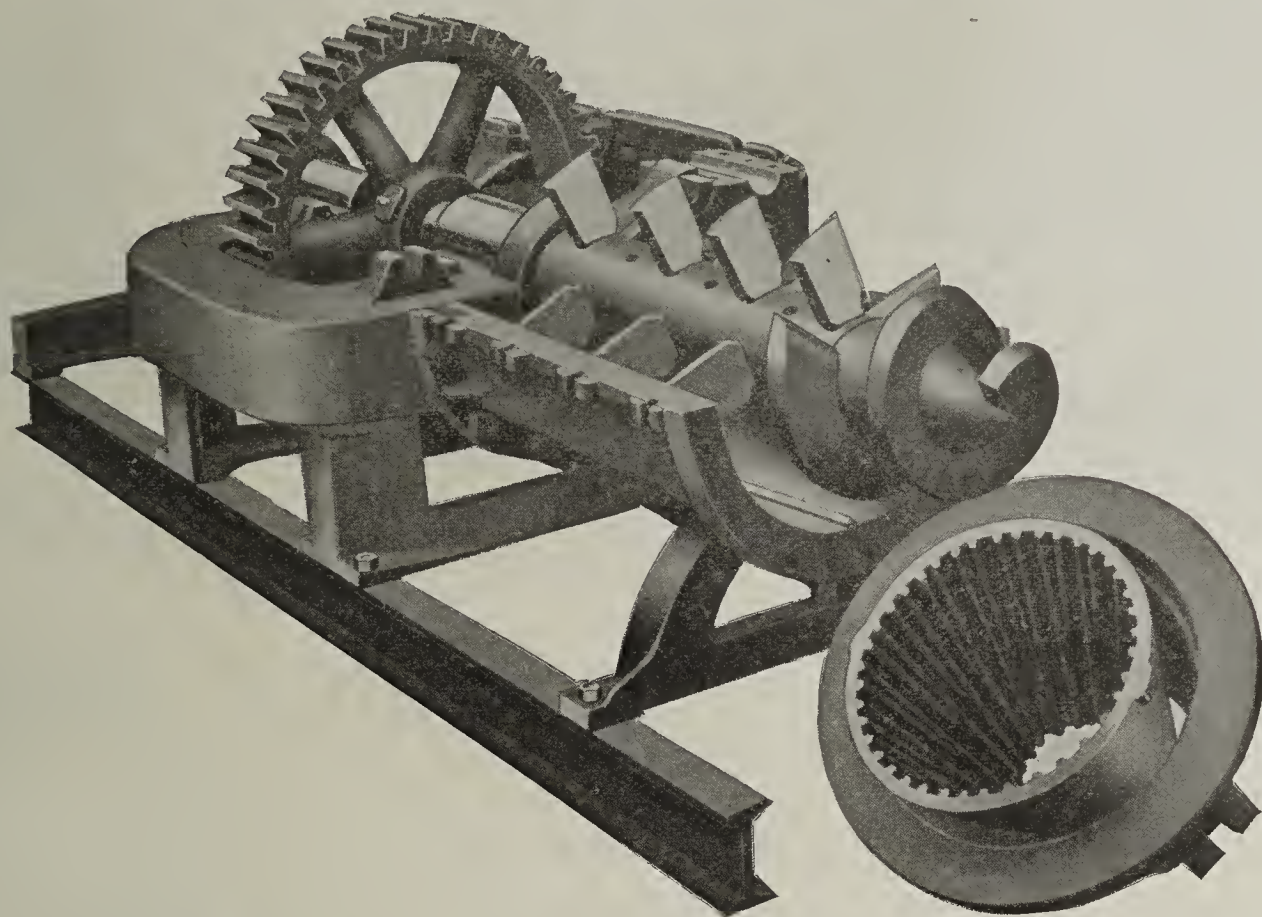
THE BONNOT COMPANY

909 N. Y. Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention THE CLAY-WORKER.

A STEELE MACHINE



No. 5 Brick Machine. Inside View.

Adjustable hardened steel knives, steel shaft, with renewable iron shell; main bearing 9 inches in diameter; the end-thrust held by U bolt, equalizing the pressure. The front is fitted with a renewable chilled bush; steel cut gears, and other parts liable to break, made of steel.

Provided with opening between barrel and main box, preventing clay from working into the box.

Guaranteed to produce better and straighter cut brick at less cost than any other for upkeep.

If you have a clay that is too much for the machine you are trying to work, let us hear from you.

Toluca, Mexico, October 25th, 1910.

Messrs. J. C. Steele & Sons,
Statesville, N. C.:

Gentlemen—In regard to my experience with your make of brickmaking machinery in the Republic of Mexico, would say that during the twenty-two years that I have been here, have operated several different makes of brickmaking machines. Of course I had “ups and downs,” but have had much better luck since have been operating your equipment.

I installed a No. 4 plant for the Tamos Ver. Co., also a No. 4 plant for the Cuernavaca Mor. Co. and both of these outfits are doing good work and both of them replaced stiff-mud auger machinery of another manufacture. This means something, of course.

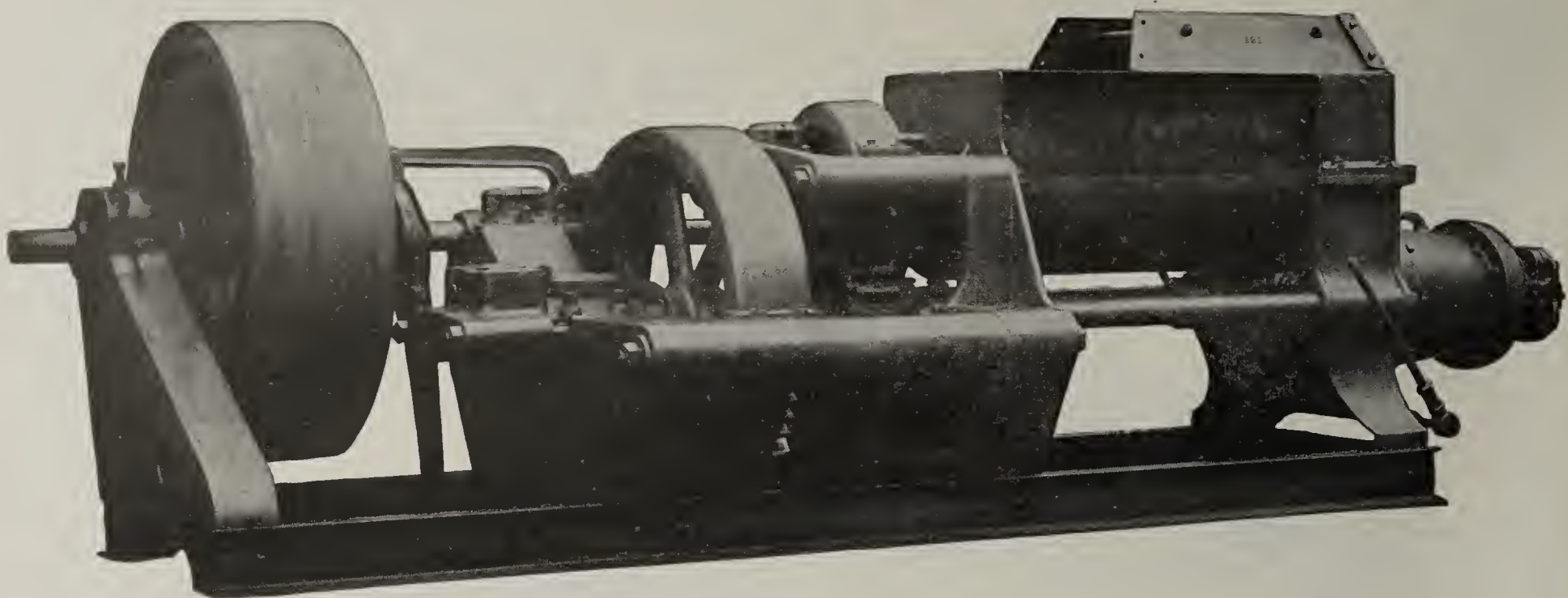
The No. 2 outfit that I am now operating here in Toluca is the smoothest outfit that I have ever handled and am making 24,000 good brick per day of ten hours.

Very truly yours,
(Signed) J. P. DOYLE.

J. C. STEELE & SONS,

Write for catalog.

STATESVILLE, N. C.



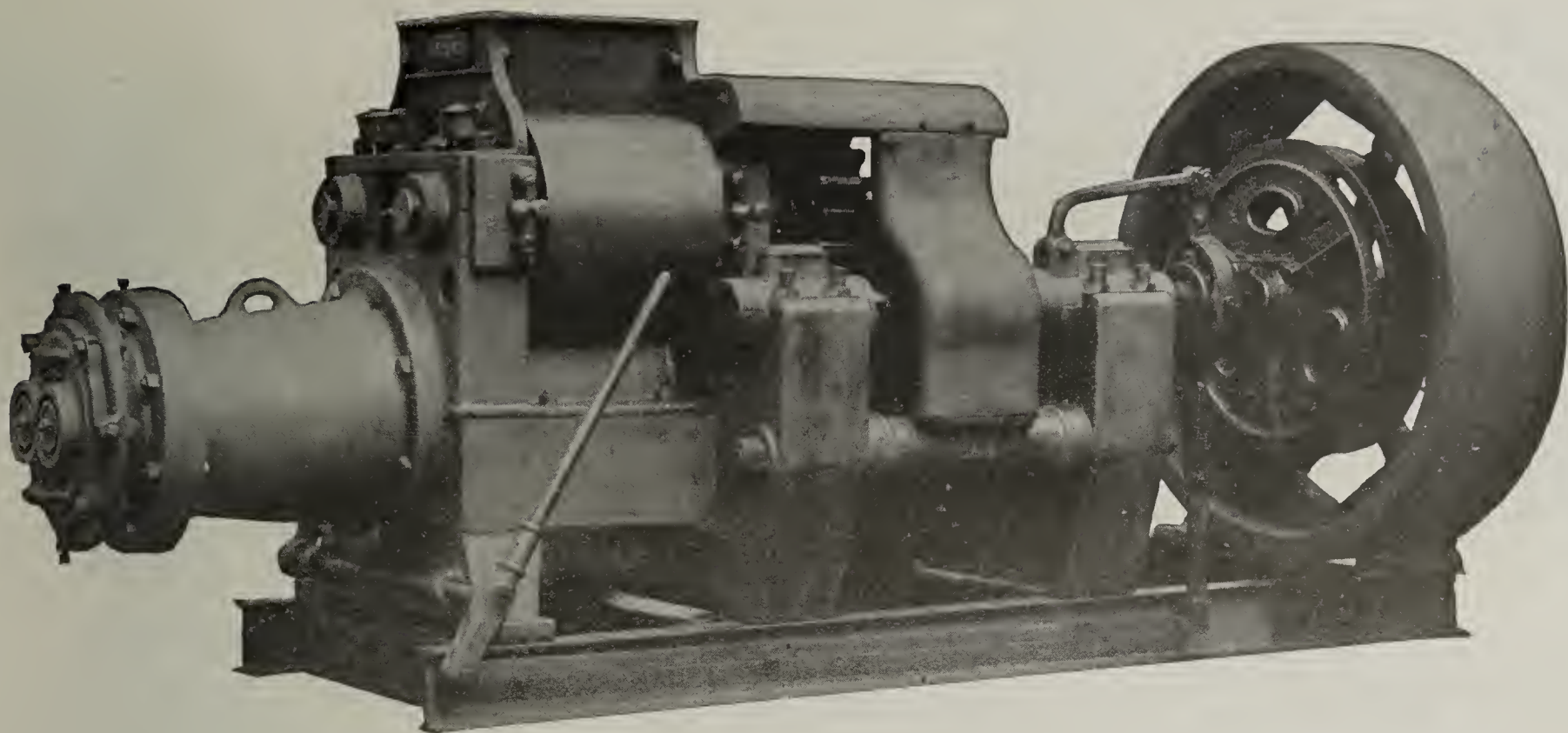
MODEL "K" AUGER BRICK MACHINE

This Machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY,

GALION, OHIO.



A New Auger Machine With Crusher Rolls Combined

This machine is designed especially for the manufacture of drain tile, hollow brick and blocks, fire proofing and similar ware, and is recommended for those who wish machinery of the largest capacity for this class of work.

It is of exceedingly substantial proportions, weighing about 14,500 pounds, and is designed for hard work and long service.

The chilled crusher rolls not only assist in pulverizing the clay and gravel; but one of their important advantages is found in the fact that they positively force the clay into the auger chamber, thus materially increasing the output. Adjustable scrapers are provided between the crusher rolls and form a continuous passage for the clay from the rolls to the auger chamber.

The roll boxes are connected by four heavy, horizontal bolts. These bolts pass entirely through and receive the strain which might arise in case a bolt or railroad spike should fall into the hopper, rendering any serious breakage improbable.

The parts which fit together are carefully and accurately machine-finished, insuring permanent rigidity. There are various other interesting and important features.

E. M. FREESE & COMPANY,

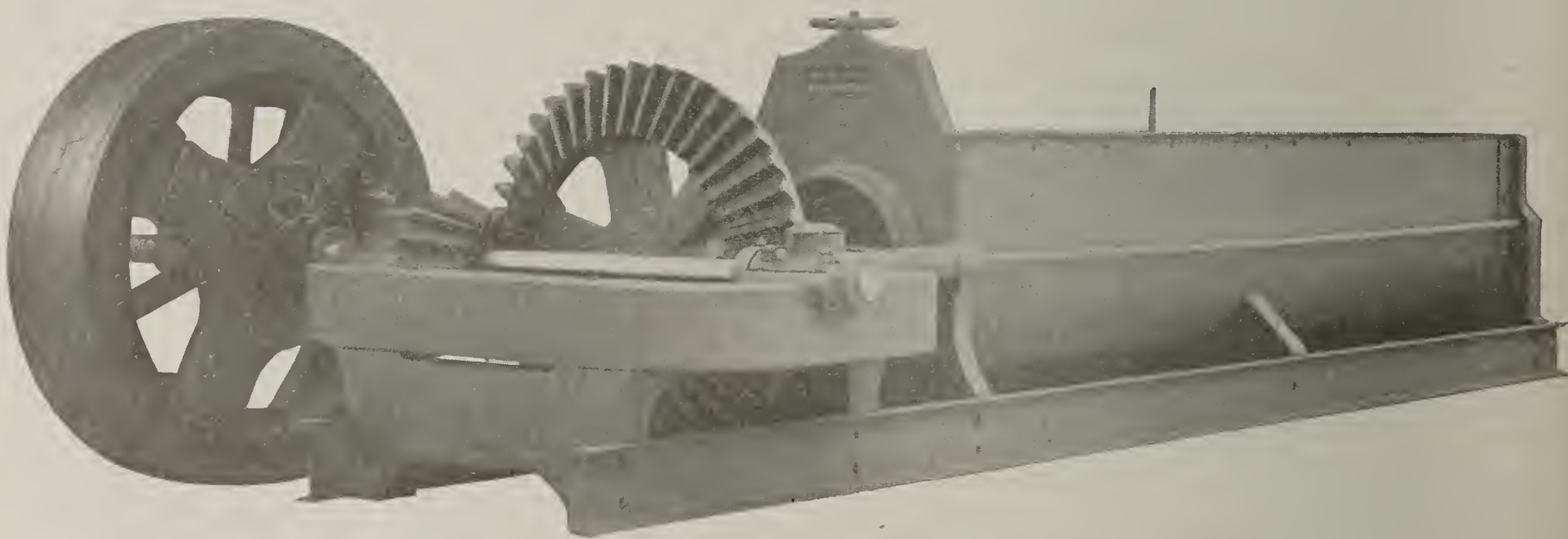
GALION, OHIO.

Write for Catalog.



WE are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-gear machine of large capacity, designed for most exacting requirements.

Let us send you particulars.



THIS is an example of a bevel geared—gear end discharge—Pug Mill built in several sizes. These machines embody many desirable features.

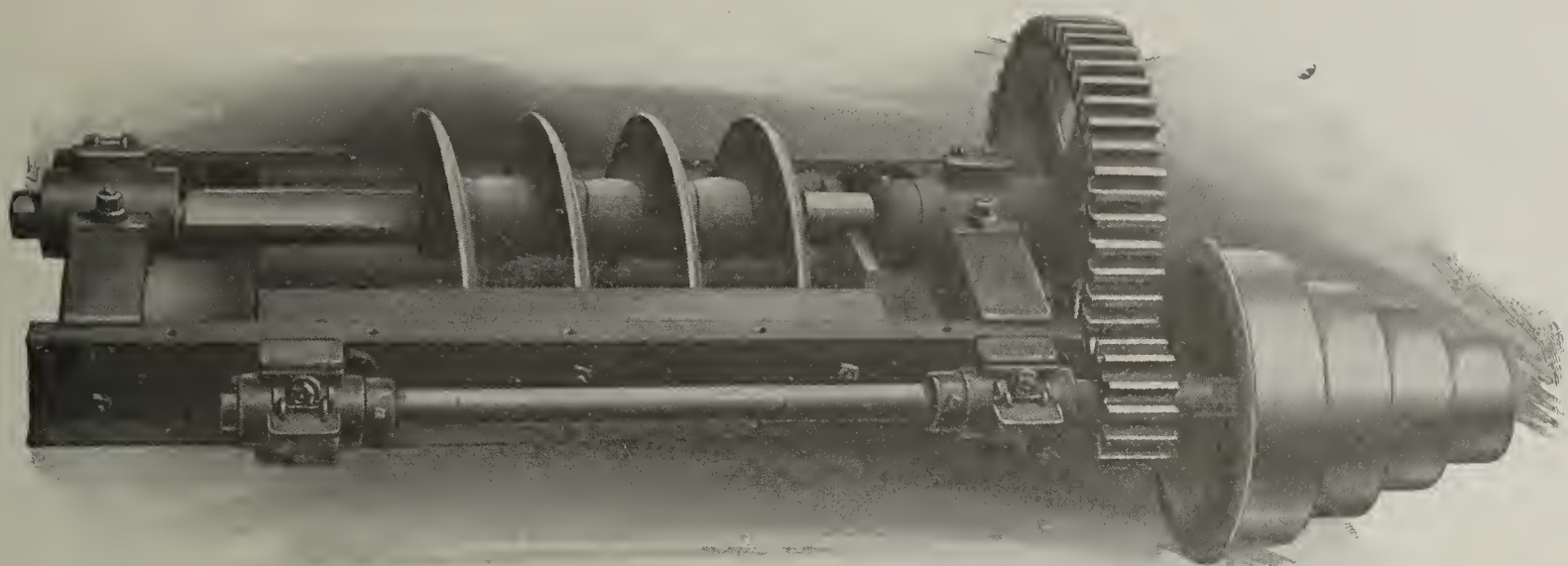
We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified.

We believe we are in position to furnish more value for the price than can be obtained elsewhere.

E. M. FREESE & COMPANY,

Write Us Now.

GALION, OHIO.



SPIRAL CLAY FEEDER

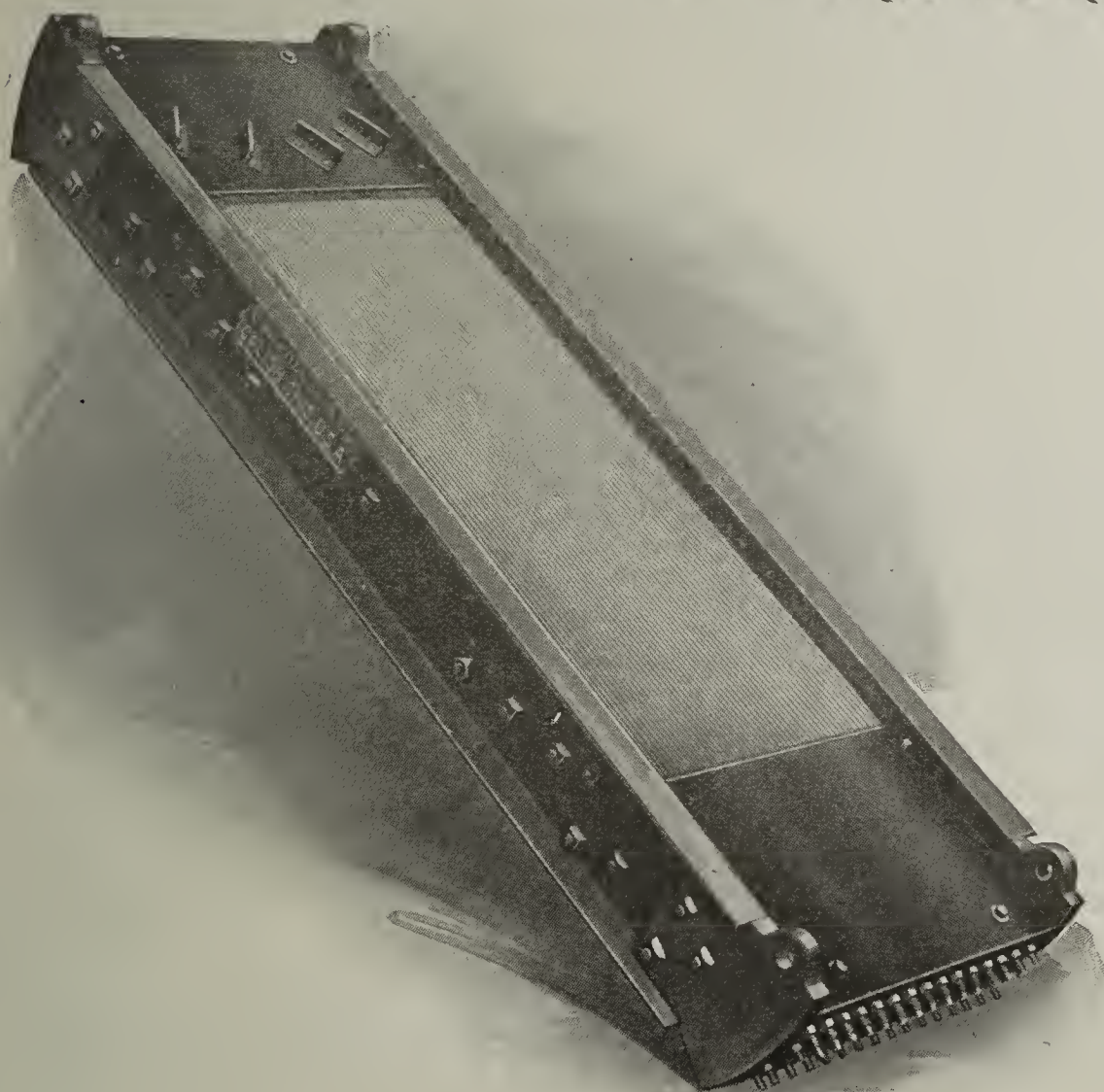
This Feeder is designed for shales, fire clays or other pulverized, dry material, and is intended to give a constant and uniform flow from the storage bin to Pug Mill or Brick Machine, avoiding the usual annoyance of clogging and bridging over.

The entire apparatus is self-contained and forms the bottom of the bin, which places the screw directly in the clay. There is no spout or chute for the clay to pass through before reaching the feeding device.

The only part exposed to wear from the clay is a hard iron sectional screw, easily and cheaply renewed. The rate of flow is readily adjusted by means of cone pulleys driven at the proper speed to take care of any capacity.

Two or more of these Feeders may be used as a measuring device where it is desirable to mix different materials in exact proportions.

PIANO WIRE SCREEN



Here is a Piano Wire Screen which has no taper pins or cap screws to stick or work loose and no little bolts crowded close together.

Each pair of wires has a hook bolt for adjusting the tension. These bolts are one-half inch square and pass through a plate having square holes to hold the hooks in one position. The bolt ends are turned and threaded, giving a full thread for the one-half inch nut. Plenty of space around the nuts for convenient access in tightening.

The standard Screen for one Pan has a screening surface 24" x 54" with any desired mesh and size of wire. Mesh can be easily changed. This Screen weighs 1,000 pounds. We also build a larger one.

Write for further information.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.

Ask The Man Who Owns One

It is Easy, for There Are Hundreds of Them.

Whenever you see a manufacturer who uses the Stevenson Pan, Press or Screen, you find him to be a thoroughly satisfied man. Why? Because the STEVENSON machinery never fails to do its work well. It is absolutely reliable, is backed by years of experience, and has never been found wanting.

You don't have to travel far to see the Stevenson machinery in operation.

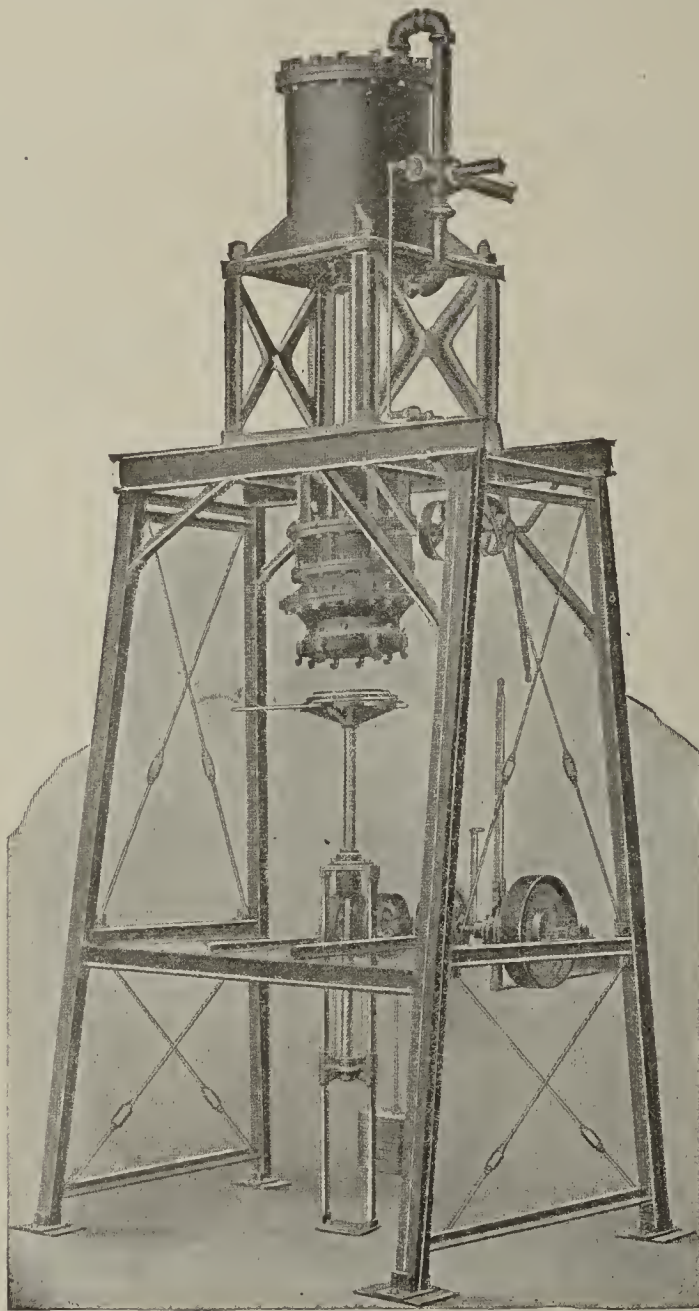
The Stevenson Company covers the entire field.

The Stevenson Company backs up its assertions.

The Stevenson Company can convince you that it has machinery worth many times its cost to you.

Get in communication with them and let them know your troubles.

Let them send you addresses of hundreds of satisfied users.



The Stevenson Sewer Pipe Press.

Unsolicited Testimonials.

KITTANNING BRICK
AND FIRE CLAY CO.

"We have been running this Pan for a good many years with little or no trouble.

S. C. MARTIN, Pres."

Dec. 23, 1903.

"We ground clay to make 108,000 brick on our Pan yesterday. Would like to make at least 100,000 per day in September.

E. B. LATSHAW, Supt."

Sept. 4, 1905.

SCIOTO FIRE BRICK CO.

"We purchased our Dry Pan from you 13 years ago. It has ground over 14,000 tons per year of hard shale, and is good for several years yet.

C. W. TURNER."

March 19, 1908.

SUBURBAN BRICK CO.

"While your price [on Screen Plates] is higher, we believe your plates are worth the difference.

A. A. WHEAT, Treas."

August 25, 1910.

Write for Latest Catalogue.

THE STEVENSON COMPANY

Wellsville, Ohio

For Sixty
Years
The Name

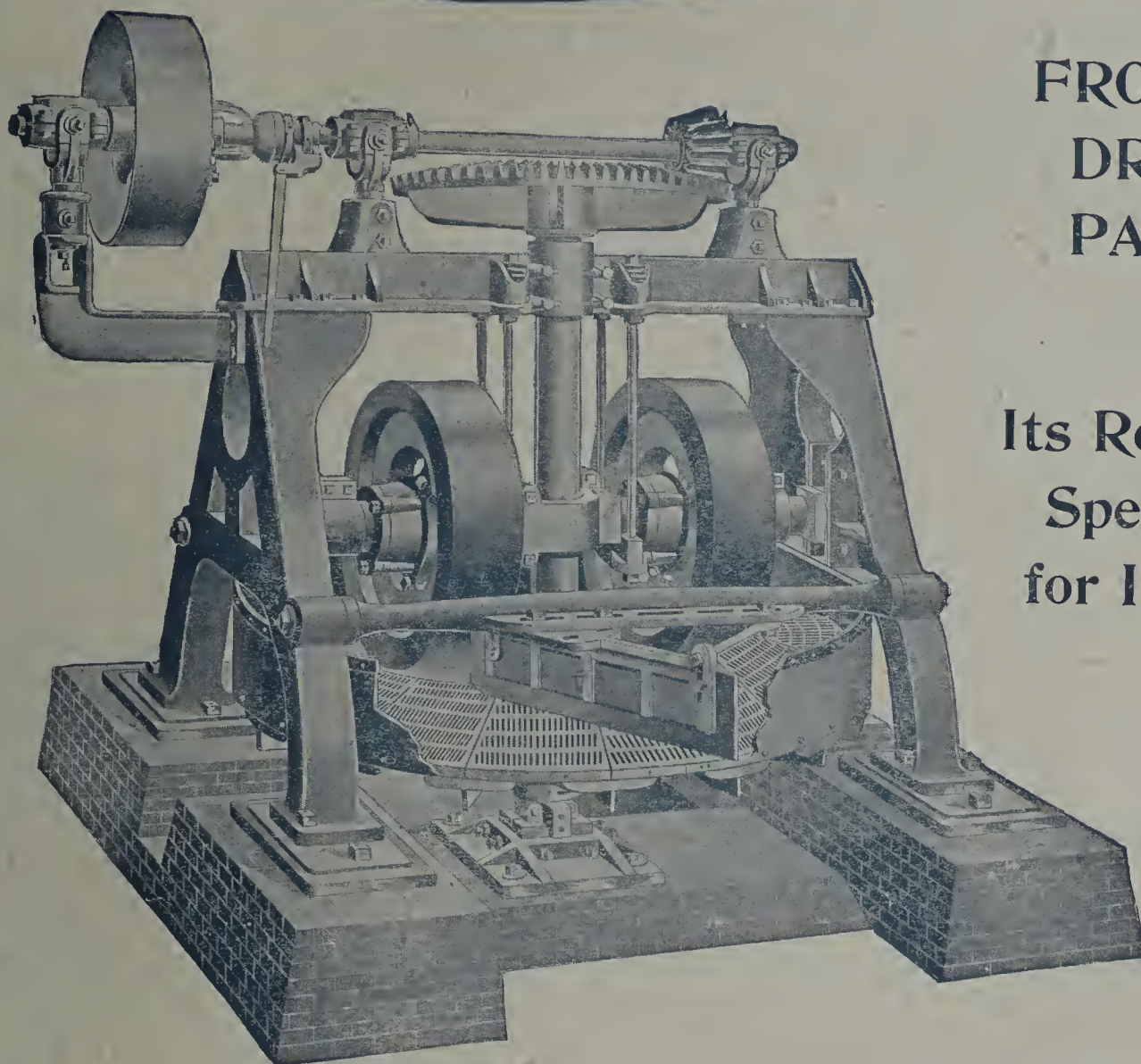
Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

READ
THIS

FROST
DRY
PAN

Its Record
Speaks
for Itself



R. S. Root, President.

W. R. Bennett, Vice-President and Treasurer.

A. W. Hope, Secretary.

ACME PRESSED BRICK COMPANY,
Manufacturers of

Ornamental, Front and Common Brick,
Dry Press Process.

The Frost Manufacturing Company,
Galesburg, Ill.

Millsap, Texas, October 25, 1910.

Gentlemen—In reply to your favor of 15th inst, we take pleasure in stating to you that we operated two of your dry pans for twenty years, and not in a single instance did we have the least bit of trouble with them. On one of these pans we never changed the original master gear and yet gave this pan hard service, as our records show it ground out 85 millions of brick in the twenty years it ran.

Last year we had occasion to purchase two new pans and without the least hesitation we purchased the FROST.

We are now running four of your pans every day, and they are doing the same good work that they have always done for us, except the two new ones are much stronger and able to crush more shale per day than the two old ones did that we discarded after we had operated them constantly for twenty years.

We trust that you will continue to make the same high-grade pan that you have shipped us, and if you do, cannot see why your dry pan business should not be a great success.

Yours truly, ACME PRESSED BRICK COMPANY.
By W. R. Bennett, Vice-Pres.

Write for Special Bulletins and Specifications.

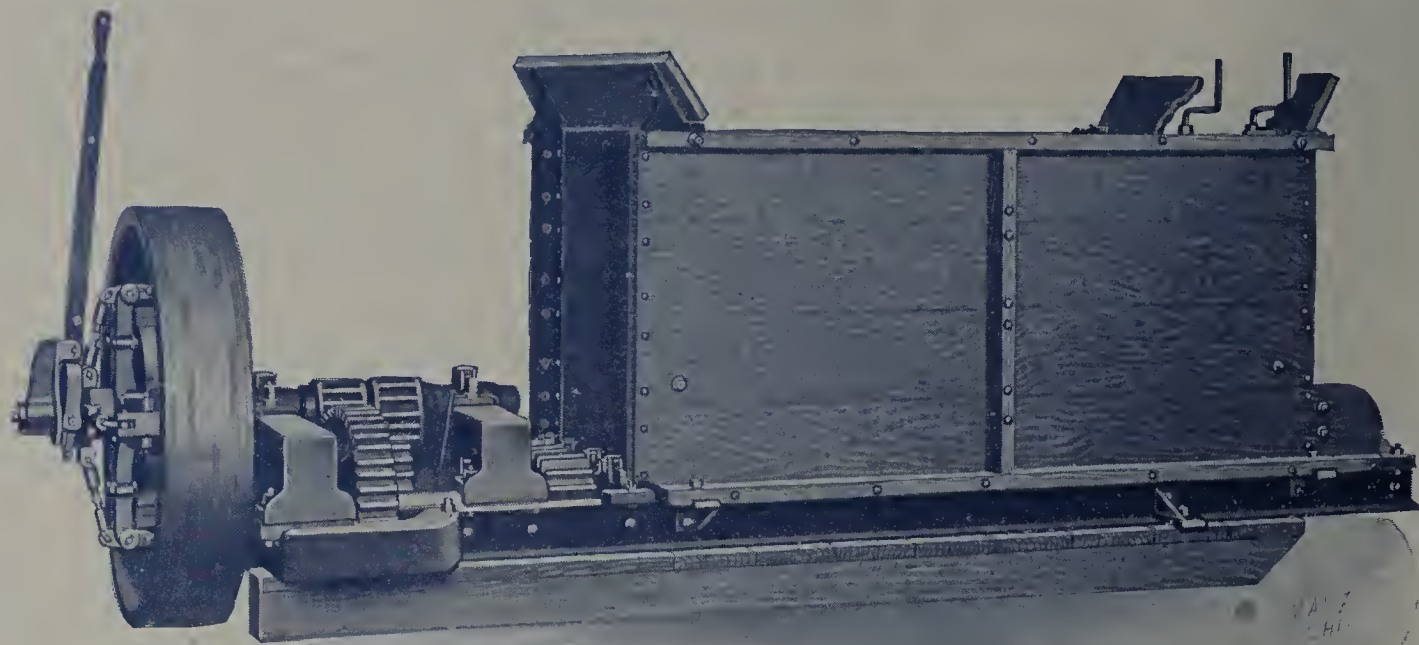
The Frost Manufacturing Co.

Works:
GALESBURG, ILL.

CHICAGO OFFICE:
135 Adams St., CHICAGO, ILL.

Cable Address, "FROSTMANCO," Chicago.

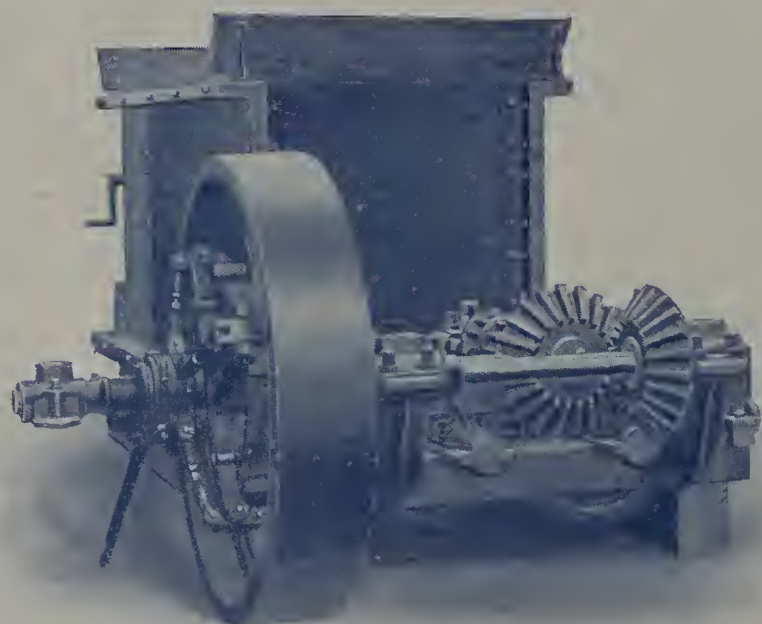
Mention THE CLAY-WORKER.



Fate Special Granulator and Clay Feeder.



Fate Special Granulator and Clay Feeder (Interior View.)



End View of Fate Granulator and Clay Feeder When Bevel Geared.

We present for your careful consideration our new Special Clay Feeder and Granulator and would be pleased to give you full information if you are interested and ask for it.

The J. D. Fate Co.

Plymouth, Ohio

A. E. DAVIDSON, Eastern Representative
Room 6060, No. 1 Madison Ave., New York

ESTABLISHED 1895.

OHIO TILE AND BRICK CO.

SUCCESSORS TO THE OHIO BRICK AND TILE WORKS

Manufacturers of

BRICK, BUILDING BLOCK, DRAIN TILE,
SHINGLE AND INTERLOCKING
ROOFING TILE.Office and Works
Ottawa, Ohio

Ottawa, Ohio Dec. 3d 19 10

The J. D. Fate Co.,
Plymouth, Ohio:

Dear Sirs:-

We find since installing your clay feeder that we have increased our output about 50%. It is a source of satisfaction to see it work, and keeps the pug mill full all the time. It does more work than four men could do, and the quality of goods manufactured is better, as mud is worked more and tempered better.

Whenever steam is up and ready to run, it is ready to faithfully perform its duties. No labor to contend with, and is one steady feed, and men must keep up with machines. As formerly the machines had to keep up with the men, I have nothing but words of praise for same, and advise anyone having labor to contend with to install a feeder and his troubles are over. A machine that is always on the job ready to perform its duties 365 days a year. It is a machine heavy enough to perform all that it is asked to do, and does not require a great amount of horsepower to run same. Thanking you in advance for this great help to the tile and brick industry, I am

Respectfully yours,

OHIO TILE AND BRICK CO.

Per H. W. Allen,
Mgr.**The J. D. Fate Co., Plymouth, Richland Co., Ohio**

New York Office, Room 6060, No. 1 Madison Ave.—A. E. Davidson, Eastern Representative.

If there is an atom of doubt in your mind that the

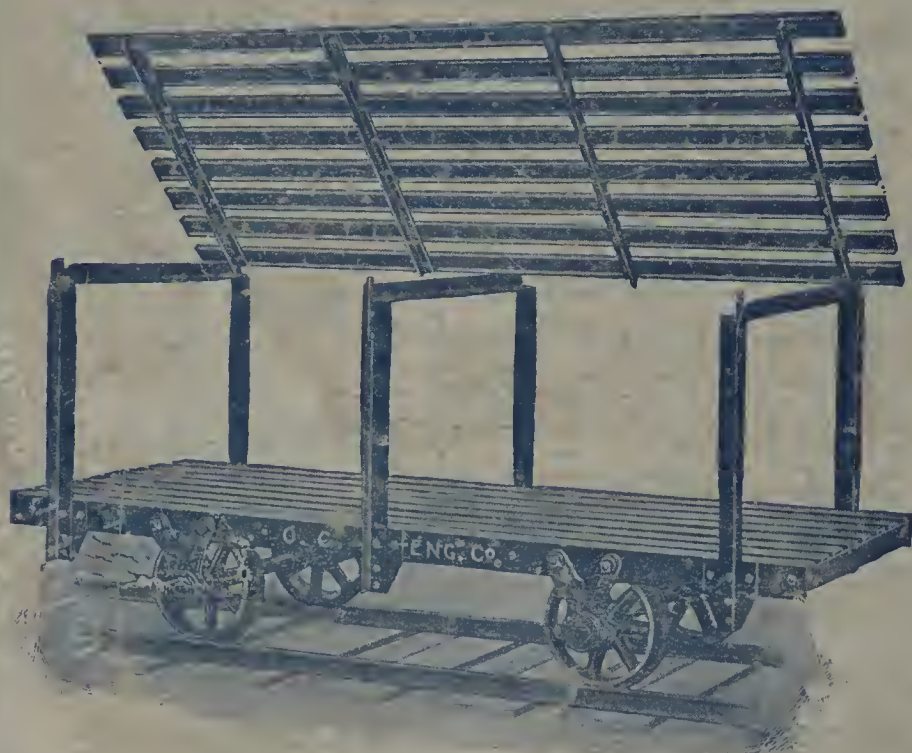
PERFECT CLAY SCREEN

will fill all requirements, dispel it; we take the chances. We are looking for what you may call trouble. That is properly screening clay. It is not trouble for us, it is our business.

Do not be backward about asking us.

We will be Dee-Lighted to serve you.

DUNLAP MFG. CO.,
BLOOMINGTON, ILL.



No. 167. Double Deck Car.

OUR LEADER.

A very desirable car for use in Brick or Tile plants. Made with or without steel decks, also with three decks.

We are prepared to build special cars for your particular need.

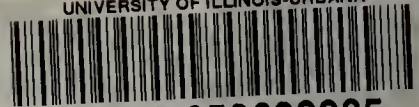
Also Transfers, Clay Cars,
Represses, Screens and
Kiln Bands.

The Ohio Ceramic Engineering Co.,

1015 First Nat'l Bank Bldg., Chicago, Ill.

Cleveland, Ohio.

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